RM No. 8J05



RESEARCH MEMORANDUM

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BIBLIOGRAPHY OF NACA AND OTHER REPORTS

ON AIR INLETS AND INTERNAL FLOWS

Compiled by

Aerodynamics Research Branch NACA Headquarters

CASEFILE

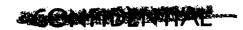


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NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

WASHINGTON

October 11, 1948



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NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

BIBLIOGRAPHY OF NACA AND OTHER REPORTS

ON AIR INLETS AND INTERNAL FLOWS

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INTRODUCTION

At the suggestion of the Subcommittee on Internal Flow, the National Advisory Committee for Aeronautics has assembled this bibliography on air inlet and internal flow data for aircraft.

It was felt that the purpose of this publication, to furnish the engineer and researcher with a listing of theoretical and experimental studies related directly and indirectly to the field of internal flows, could be served best by presenting some of the more pertinent and interesting references. Thus this bibliography is not complete in its listing of internal flow reports from the NACA or from other sources. The works referenced here are, for the most part, those published before January 1948.

To aid the investigator in finding references, the bibliography has been indexed according to subject matter. NACA reports and reports from other sources are grouped separately. The subject breakdown used may be found in the table of contents on the preceding pages.

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PART I

NACA REPORTS

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

RESEARCH MEMORANDUM

BIBLIOGRAPHY OF NACA AND OTHER REPORTS

ON AIR INLETS AND INTERNAL FLOWS

Compiled by Aerodynamics Research Branch, NACA Headquarters

NACA REPORTS Part I

AERODYNAMICS

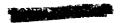
FUNDAMENTAL AERODYNAMICS

COMPRESSIBLE FLOW

Subsonic Flow

- Lees, Lester: A Discussion of the Application of the Prandtl-Glauert Method to Subsonic Compressible Flow over a Slender Body of Revolution. NACA TN No. 1127, September 1946.
- Gothert, B.: Plane and Three-Dimensional Flow at High Subsonic Speeds. NACA TM No. 1105, October 1946.
- Hess, Robert V., and Gardner, Clifford S.: Study of the Prandtl-Glauert Method of Compressibility Effects and Critical Mach Number for Ellipsoids of Various Aspect Ratios and Thickness Ratios. NACA RM No. L7B03a, March 1947.
- Bilharz, H., and Holder, E.: Calculation of the Pressure Distribution on Bodies of Revolution in the Subsonic Flow. Part I Axially Symmetrical Flow. NACA TM No. 1153, July 1947.
- Smith, Norman F.: Numerical Evaluation of Mass-Flow Coefficient and Associated Parameters from Wake-Survey Equations. NACA TN No. 1381, August 1947.
- Schafer, Manfred: Equations for Adiabatic but Rotational Steady Gas Flows without Friction. NACA TM No. 1187, August 1947.
- Turner, L. Richard, Addie, Albert N., and Zimmerman, Richard H.: Charts for the Analysis of One-Dimensional Steady Compressible Flow. NACA TN No. 1419, January 1948.





Mixed Flow

- Fossel, W.: Flow in Smooth Straight Pipes at Velocities above and below Sound Velocity. NACA TM No. 844, January 1938.
- Kaplan, Carl: The Flow of a Compressible Fluid Past a Curved Surface. NACA Report No. 768, 1943.
- Bergman, Stefan: On Supersonic and Partially Supersonic Flows. NACA TN No. 1096, December 1946.
- Ackeret, J., Feldmann, F., and Rott, N.: Investigations of Compression Shocks and Boundary Layers in Gases Moving at High Speed. NACA TM No. 1113, January 1947.
- Gothert, Bernard H., and Kawalki, K. H.: The Calculation of Compressible Flows with Local Regions of Supersonic Velocity. NACA TM No. 1114, March 1947.
- Kantrowitz, Arthur: The Formation and Stability of Normal Shock Waves in Channel Flows. NACA TN No. 1225, March 1947.
- Eggink: Compression Shocks of Detached Flow. NACA TM No. 1150, June 1947.
- Weise, A.: The Separation of Flow Due to Compressibility Shock. NACA TM No. 1152, July 1947.
- Heybey: Analytic Treatment of Normal Condensation Shock. NACA TM No. 1174, July 1947.

Supersonic Flow

- Prandtl, L.: General Considerations on the Flow of Compressible Fluids. NACA TM No. 805, October 1936.
- Donaldson, Coleman duP.: Effects of Interaction between Normal Shock and Boundary Layer. NACA CB No. 4A27, January 1944.
- Ferri, Antonio: Application of the Method of Characteristics to Supersonic Rotational Flow. NACA TN No. 1135, September 1946.
- Bergman, Stefan: On Supersonic and Partially Supersonic Flow. NACA TN No. 1096, December 1946.
- Sauer, R.: Method of Characteristics for Three-Dimensional Axially Symmetrical Supersonic Flows. NACA TM No. 1133, January 1947.
- Busemann, A.: Infinitesimal Conical Supersonic Flow. NACA TM No. 1100, March 1947.
- Kantrowitz, Arthur: The Formation and Stability of Normal Shock Waves in Channel Flows. NACA TN No. 1225, March 1947.





Supersonic Flow (Continued)

- Laitone, Edmund V., and Pardee, Otway O'M.: Location of Detached Shock Wave in Front of a Body Moving at Supersonic Speeds. NACA RRM No. A7BlO, May 1947.
- Schafer, Manfred: Equations for Adiabatic but Rotational Steady Gas Flows without Friction. NACA TM No. 1187, August 1947.

VISCOUS FLOW

Laminar and Turbulent Flow

- Parsons, John F., and Wallan, Jarvis A.: An Investigation of the Phenomenon of Separation in the Air Flow around Simple Quadric Cylinders. NACA TN No. 354, November 1930.
- Gruschwitz, E.: The Process of Separation in the Turbulent Friction Layer. NACA TM No. 699, February 1933.
- Tollmien, W.: General Instability Criterion of Laminar Velocity Distributions. NACA TM No. 792, April 1936.
- Schubauer, G. B.: Air Flow in the Boundary Layer of an Elliptical Cylinder. NACA TR No. 652, 1939.
- Charters, Alex C., Jr.: Transition between Laminar and Turbulent Flow by Transverse Contamination. NACA TN No. 891, March 1943.
- Shih-I, Pai: Turbulent Flow between Rotating Cylinders. NACA TN No. 892, March 1943.
- Schubauer, G. B., and Skramstad, H. K.: Laminar-Boundary-Layer Oscillations and Transition on a Flat Plate. NACA ACR, April 1943.
- Liepmann, Hans W.: Investigations on Laminar Boundary-Layer Stability and Transition on Curved Boundaries. NACA ACR No. 3H30, August 1943.
- Reichardt, H.: Heat Transfer through Turbulent Friction Layers. NACA TM No. 1047, September 1943.
- von Doenhoff, Albert E., and Tetervin, Neal: Determination of General Relations for the Behavior of Turbulent Boundary Layers. NACA Report No. 772, 1943.
- Frankl, F., and Voishel, V.: Turbulent Friction in the Boundary Layer of a Flat Plate in a Two-Dimensional Compressible Flow at High Speeds. NACA TM No. 1053, December 1943.
- Donaldson, Coleman duP.: Effects of Interaction between Normal Shock and Boundary Layer. NACA CB No. 4A27, January 1944.



Laminar and Turbulent Flow (Continued)

- Liepmann, Hans W.: Investigation of Boundary-Layer Transition on Concave Walls. NACA ACR No. 4J28, February 1945.
- Ackeret, J., Feldmann, F., and Rott, N.: Investigations of Compression Shocks and Boundary Layers in Gases Moving at High Speed. NACA TM No. 1113, January 1947.
- Dryden, Hugh L.: Some Recent Contributions to the Study of Transition and Turbulent Boundary Layers. NACA TN No. 1168, April 1947.
- Liepmann, Hans W., and Fila, Gertrude H.: Investigations of Effects of Surface Temperature and Single Roughness Elements on Boundary-Layer Transition. NACA TN No. 1196, April 1947.
- Allen, H. Julian, and Nitzberg, Gerald E.: The Effect of Compressibility on the Growth of the Transonic Boundary Layer on Low-Drag Wings and Bodies. NACA TN No. 1255, April 1947.
- Smith, Newell H.: Exploratory Investigation of Laminar-Boundary-Layer Oscillations on a Rotating Disk. NACA TN No. 1227, May 1947.
- Ulrich, A.: Theoretical Investigation of Drag Reduction in Maintaining the Laminar Boundary Layer by Suction. NACA TM No. 1121, June 1947.
- Pierpont, P. Kenneth: Investigation of Suction-Slot Shapes for Controlling a Turbulent Boundary Layer. NACA TN No. 1292, June 1947.
- Eggink: Compression Shocks of Detached Flow. NACA TM No. 1150, June 1947.
- Lees, Lester: The Stability of the Laminar Boundary Layer in a Compressible Fluid. NACA TN No. 1360, July 1947.
- Tetervin, Neal: A Review of Boundary-Layer Literature. NACA TN No. 1384, July 1947.
- Pfenninger, Werner: Investigations on Reductions of Friction on Wings, in Particular by Means of Boundary Layer Suction. NACA TM No. 1181, August 1947.
- Tetervin, Neal: Boundary-Layer Momentum Equations for Three-Dimensional Flow. NACA TN No. 1479, October 1947.

Jet Mixing

Corrsin, Stanley: Investigation of Flow in an Axially Symmetrical Heated Jet of Air. NACA ACR No. 3L23, December 1943.





Jet Mixing (Continued)

- Corrsin, Stanley: Investigation of the Behavior of Parallel Two-Dimensional Air Jets. NACA ACR No. 4H24, November 1944.
- Liepmann, Hans W., and Laufer, John: Investigation of Free Turbulent Mixing. NACA TN No. 1257, August 1947.

AERODYNAMICS WITH HEAT

Heat Transfer

- Crocco, Luigi: Transmission of Heat from a Flat Plate to a Fluid Flowing at a High Velocity. NACA TM No. 690, October 1932.
- Pinkel, Benjamin: Heat-Transfer Processes in Air-Cooled Engine Cylinders. NACA Report No. 612, 1938.
- Frankl, F., and Voishel, V.: Heat Transfer in the Turbulent Boundary Layer of a Compressible Gas at High Speeds, by F. Frankl; and Friction in the Turbulent Boundary Layer of a Compressible Gas at High Speeds, by F. Frankl and V. Voishel. NACA TN No. 1032, October 1942.
- Reichardt, H.: Heat Transfer through Turbulent Friction Layers. NACA TM No. 1047. September 1943.
- Wood, George P.: Use of Stagnation Temperature in Calculating Rate of Heat Transfer in Aircraft Heat Exchangers. NACA RB No. 3J30, October 1943.
- Nielsen, Jack N.: High-Altitude Cooling. Part III Radiators. NACA ARR, September 1944.
- Williams, David T.: High-Altitude Cooling. Part II Air-Cooled Engines. NACA ARR, September 1944.
- Liepmann, Hans W., and Fila, Gertrude H.: Investigations of Effects of Surface Temperature and Single Roughness Elements on Boundary-Layer Transition. NACA TN No. 1196, April 1947.
- Lees, Lester: The Stability of the Laminar Boundary Layer in a Compressible Fluid. NACA TN No. 1360, July 1947.
- Ellerbrock, H. H., Jr., Wcislo, C. R., and Dexter, H. E.: Analysis, Verification, and Application of Equations and Procedures for the Design of Exhaust-Pipe Shrouds. NACA TN No. 1495, December 1947.



Addition of Heat

- Becker, J. V., and Baals, D. D.: The Aerodynamic Effects of Heat and Compressibility. NACA ACR, September 1942.
- Kantrowitz, Arthur: Effects of Heat-Capacity Lag in Gas Dynamics. NACA ARR No. 4A22, January 1944.
- Kantrowitz, Arthur, and Huber, Paul W.: Heat-Capacity Lag in Turbine-Working Fluids. NACA RB No. L4E29, May 1944.
- Hicks, Bruce L.: Addition of Heat to a Compressible Fluid in Motion. NACA ACR No. E5A29, February 1945.
- Baals, Donald D., and Mourhess, Mary J.: Numerical Evaluation of the Wake-Survey Equations for Subsonic Flow Including the Effect of Energy Addition. NACA ARR No. L5H27, November 1945.
- Hicks, Bruce L., Montgomery, Donald J., and Wasserman, Robert H.: The One-Dimensional Theory of Steady Compressible Flow in Ducts with Friction and Heat Addition. NACA TN No. 1336, July 1947.

BODIES

DUCTED BODIES

- Becker, John V.: Wind-Tunnel Tests of Air Inlet and Outlet Openings on a Streamline Body. NACA ACR, November 1940.
- Becker, J. V., and Baals, D. D.: Wind-Tunnel Tests of a Submerged-Engine Fuselage Design. NACA ACR, October 1940.
- Becker, John V., and Baals, Donald D.: High-Speed Tests of a Ducted Body with Various Air-Outlet Openings. NACA ACR, May 1942.
- Baals, Donald D.: Bibliography and Review of Technical Information Relating to Design of High-Speed Aircraft. NACA MR No. L5All, January 1945.
- Ellis, Macon C., Jr., and Brown, Clinton E.: Analysis of Supersonic Ram-Jet Performance and Wind-Tunnel Tests of a Possible Supersonic Ram-Jet Airplane Model. NACA ACR No. L5L12, December 1945.
- Brown, Clinton E., and Parker, Herman M.: A Method for the Calculation of External Lift, Moment, and Pressure Drag of Slender Open-Nose Bodies of Revolution at Supersonic Speeds. NACA ACR No. L5L29, March 1946.
- Hill, Paul R.: Parameters Determining Performance of Supersonic Pilotless Airplanes Powered by Ram-Compression Power Plants. NACA ACR No. L6D17, June 1946.





DUCTED BODIES (Continued)

Ferri, Antonio: Application of the Method of Characteristics to Supersonic Rotational Flow. NACA TN No. 1135, September 1946.

INTERNAL AERODYNAMICS

- Becker, J. V., and Baals, D. D.: Wind-Tunnel Tests of a Submerged-Engine Fuselage Design. NACA ACR, October 1940.
- Czarnecki, K. R.: Pressure-Drop Characteristics of Orifice Plates Used to Simulate Radiators. NACA ARR, March 1942.
- Becker, John V., and Baals, Donald D.: Analysis of Heat and Compressibility Effects in Internal Flow Systems and High-Speed Tests of a Ram-Jet System. NACA ACR, September 1942.
- Becker, John V., and Baals, Donald D.: Simple Curves for Determining the Effects of Compressibility on Pressure Drop through Radiators. NACA ACR No. 14123, September 1944.
- Ellis, Macon C., Jr., and Brown, Clinton E.: Analysis of Supersonic Ram-Jet Performance and Wind-Tunnel Tests of a Possible Supersonic Ram-Jet Airplane Model. NACA ACR No. L5L12, December 1945.
- Adler, Alfred A.: Variation with Mach Number of Static and Total Pressures through Various Screens. NACA CB No. L5F28, February 1946.
- Habel, Louis W., and Gallagher, James J.: Tests to Determine the Effect of Heat on the Pressure Drop through Radiator Tubes. NACA TN No. 1362, July 1947.
- Lankford, John L.: Investigation of the Pressure-Loss Characteristics of a Turbojet Inlet Screen. NACA TN No. 1418, September 1947.

NOSE INLETS

Central

- Becker, John V., and Baals, Donald D.: Wind-Tunnel Tests of a Submerged-Engine Fuselage Design. NACA ACR, October 1940.
- Becker, John V.: Wind-Tunnel Tests of Air Inlet and Outlet Openings on a Streamline Body. NACA ACR, November 1940.
- Becker, John V., and Robinson, Russell G.: High-Speed Tests of Conventional Radial-Engine Cowlings. NACA TR No. 745, 1942.
- Kantrowitz, Arthur, Street, Robert E., and Erwin, John R.: Study of the Two-Dimensional Flow through a Converging-Diverging Nozzle. NACA CB No. 3D24, April 1943.





NOSE INLETS

Central (Continued)

- Baals, Donald D.: Bibliography and Review of Technical Information Relating to Design of High-Speed Aircraft. NACA MR No. L5All, January 1945.
- Kantrowitz, Arthur, and Donaldson, Coleman duP.: Preliminary Investigation of Supersonic Diffusers. NACA ACR No. L5D20, May 1945.
- Baals, Donald D., Smith, Norman F., and Wright, John B.: The Development and Application of High-Critical-Speed Nose Inlets. NACA ACR No. L5F30a, July 1945.
- Trautwein, Elmer E., and Gabriel, David S.: The Effect of Two Inlet-Duct Designs on Turbine Efficiency. NACA CB No. E5K21, December 1945.
- Ellis, Macon C., Jr., and Brown, Clinton E.: Analysis of Supersonic Ram-Jet Performance and Wind-Tunnel Tests of a Possible Supersonic Ram-Jet Airplane Model. NACA ACR No. L5L12, December 1945.
- Brown, Clinton E., and Parker, Herman M.: A Method for the Calculation of External Lift, Moment, and Pressure Drag of Slender Open-Nose Bodies of Revolution at Supersonic Speeds. NACA ACR No. L5L29, March 1946.
- Ferri, Antonio: Application of the Method of Characteristics to Supersonic Rotational Flow. NACA TN No. 1135, September 1946.
- Wyatt, DeMarquis D., and Hunczak, Henry R.: An Investigation of Convergent-Divergent Diffusers at Mach Number 1.85. NACA CRM No. E6K21, April 1947.
- Evvard, John C., and Blakey, John W.: The Use of Perforated Inlets for Efficient Supersonic Diffusion. NACA RM No. E7C26, June 1947.

Annular

- Biermann, David, and Turner, L. I., Jr.: Ground Cooling and Flight Tests of an Airplane Equipped with a Nose-Blower Engine Cowling. NACA ACR, October 1939.
- Johnston, J. F.: Review of Flight Tests of NACA C and D Cowlings. NACA TR No. 771, 1943.
- Corson, Blake W., Jr., and McLellan, Charles H.: Cooling Characteristics of a Pratt and Whitney R-2800 Engine Installed in an NACA $D_{\rm S}$ High-Inlet-Velocity Cowling. NACA MR, June 1943.





Annular (Continued)

- Baals, Donald D.: Bibliography and Review of Technical Information Relating to Design of High-Speed Aircraft. NACA MR No. L5All, January 1945.
- Brown, Clinton E., and Parker, Hermon M.: A Method for the Calculation of External Lift, Moment, and Pressure Drag of Slender Open-Nose Bodies of Revolution at Supersonic Speeds. NACA ACR No. L5L29, March 1946.
- Boswinkle, Robert W., Jr., and Bryant, Rosemary P.: An Experimental Investigation of Flow Conditions in the Vicinity of an NACA D_s-Type Cowling. NACA MR No. 16H14, August 1946.
- Ferri, Antonio: Application of the Method of Characteristics to Supersonic Rotational Flow. NACA TN No. 1135, September 1946.
- Ferri, Antonio, and Nucci, Louis M.: Preliminary Investigation of a New Type of Supersonic Inlet. NACA CRM No. 16J31, November 1946.
- Nichols, Mark R., and Rinkoski, Donald W.: A Low-Speed Investigation of an Annular Transonic Air Inlet. NACA RM No. 16J04, April 1947.
- Eggink: Compression Shocks of Detached Flow. NACA TM No. 1150, June 1947.
- Oswatitsch, Kl.: Pressure Recovery for Missiles with Reaction Propulsion at High Supersonic Speeds (The Efficiency of Shock Diffusers). NACA TM No. 1140, June 1947.
- Dennard, John S.: An Investigation of the Low-Speed Characteristics of Two Sharp-Edge Supersonic Inlets Designed for Essentially External Supersonic Compression. NACA CRM No. L7D03, June 1947.
- Moeckel, W. E., Connors, J. F., and Schroeder, A. H.: Investigation of Shock Diffusers at Mach Number 1.85. I Projecting Single-Shock Cones. NACA CRM No. E6K27, June 1947.
- Moeckel, W. E., Connors, J. F.; and Schroeder, A. H.: Investigation of Shock Diffusers at Mach Number 1.85. II Projecting Double-Shock Cones. NACA RM No. E6L13, June 1947.
- Moeckel, W. E., and Connors, J. F.: Investigation of Shock Diffusers at Mach Number 1.85. III Multiple-Shock and Curved-Contour Projecting Cones. NACA RM No. E7F13, August 1947.
- Davis, Wallace F., Brajnikoff, George B., Goldstein, David L., and Spiegel, Joseph M.: An Experimental Investigation at Supersonic Speeds of Annular Duct Inlets Situated in a Region of Appreciable Boundary Layer. NACA RM No. A7G15, September 1947.





Annular (Continued)

Luidens, Roger W., and Hunczak, Henry R.: Preliminary Investigation of Cone-Type Diffusers Designed for Minimum Spillage at Inlet. NACA RM No. E7K19, May 1948.

LEADING-EDGE INLETS, EXITS - WINGS

- Nickle, F. R., and Freeman, Arthur B.: Full-Scale Wind-Tunnel Investigation of Wing-Cooling Ducts. Effects of Propeller Slipstream. NACA ACR, March 1939.
- von Doenhoff, Albert E.: Investigation of the Boundary Layer about a Symmetrical Airfoil in a Wind Tunnel of Low Turbulence. NACA ACR, August 1940.
- Biermann, David, and McLellan, Charles H.: Wind-Tunnel Investigation of Rectangular Air-Duct Entrances in the Leading Edge of an NACA 23018 Wing. NACA ACR, September 1940.
- Biermann, David, and Corson, Blake W., Jr.: Model Tests of a Wing-Duct System for Auxiliary Air Supply. NACA ACR, January 1941.
- Foote, W. R.: A Study of Intercoolers. NACA ARR, June 1942.
- von Doenhoff, Albert E., and Horton, Elmer A.: Preliminary Investigation in the NACA Low-Turbulence Tunnel of Low-Drag Airfoil Sections Suitable for Admitting Air at the Leading Edge. NACA ACR, July 1942.
- Harmon, Hubert N.: Wind-Tunnel Tests of Several Duct Entrances in the Leading-Edge of an NACA 23018 Wing. NACA ARR, October 1942.
- Harris, Thomas A., and Recant, Isidore G.: Investigation in the 7- by 10-Foot Wind Tunnel of Ducts for Cooling Radiators within an Airplane Wing. NACA TR No. 743, 1942.
- von Doenhoff, Albert E., and Tetervin, Neal: Determination of General Relations for the Behavior of Turbulent Boundary Layers. NACA ACR No. 3G13, July 1943.
- Nelson, W. J., and Czarnecki, K. R.: Wind-Tunnel Investigation of Wing Ducts on a Single-Engine Pursuit Airplane. NACA ARR No. 3J13, October 1943.
- Smith, Norman F.: High-Speed Investigation of Low-Drag Wing Inlets. NACA ACR No. L4I18, September 1944.





LEADING-EDGE INLETS, EXITS - WINGS (Continued)

- Lange, Roy H.: A Summary of Drag Results from Recent Langley Full-Scale Tunnel Tests of Army and Navy Airplanes. NACA ACR No. L5A30, February 1945.
- Racisz, Stanley F.: Development of Wing Inlets. NACA ACR No. L6B18, March 1946.
- Perl, W., and Moses, H. E.: Velocity Distributions on Two-Dimensional Wing Duct Inlets by Conformal Mapping. NACA RM No. E7C24, April 1947.

SIDE INLETS

- Nelson, W. J., Czarnecki, K. R., and Harrington, Robert D.: Full-Scale Wind-Tunnel Investigation of Forward Underslung Cooling-Air Ducts. NACA ARR No. 14H15, October 1944.
- Baals, Donald D.: Bibliography and Review of Technical Information Relating to Design of High-Speed Aircraft. NACA MR No. L5All, January 1945.
- Lange, Roy H.: A Summary of Drag Results from Recent Langley Full-Scale Tunnel Tests of Army and Navy Airplanes. NACA ACR No. L5A30, February 1945.
- Nichols, Mark R., and Goral, Edwin B.: A Low-Speed Investigation of a Fuselage-Side Air Inlet for Use at Transonic Flight Speeds. NACA RM No. L7A06, April 1947.

Scoops

- Naiman, Irven, and Hill, Paul R.: The Effect of External Shape upon the Drag of a Scoop. NACA ACR, July 1941.
- Rogallo, F. M.: Internal-Flow Systems for Aircraft. NACA TR No. 713, 1941.
- Nelson, W. J., and Czarnecki, K. R.: Wind-Tunnel Investigation of Carburetor-Air Inlets. NACA ARR, February 1942.
- Foote, W. R.: A Study of Intercoolers. NACA ARR, June 1942.
- Bell, E. Barton, and DeKoster, Lucas J.: A Preliminary Investigation of the Characteristics of Air Scoops on a Fuselage. NACA ARR, December 1942.
- Delano, James B.: Pressure Distribution on the Fuselage of a Midwing Airplane Model at High Speeds. NACA TN No. 890, February 1943.





Scoops (Continued)

- Wood, George P., and Brevoort, Maurice J.: Design, Selection, and Installation of Aircraft Heat Exchangers. NACA ARR No. 3G31, July 1943.
- Czarnecki, K. R., and Nelson, W. J.: Wind-Tunnel Investigation of Rear Underslung Fuselage Ducts. NACA ARR No. 3121, September 1943.
- Henry, John R.: Design of Power-Plant Installations Pressure-Loss Characteristics of Duct Components. NACA ARR No. L4F26, June 1944.
- Nelson, W. J., Czarnecki, K. R., and Harrington, Robert D.: Full-Scale Wind-Tunnel Investigation of Forward Underslung Cooling-Air Ducts. NACA ARR No. 14H15, October 1944.
- Lange, Roy H.: A Summary of Drag Results from Recent Langley Full-Scale Tunnel Tests of Army and Navy Airplanes. NACA ACR No. L5A30, February 1945.
- Smith, Norman F., and Baals, Donald D.: Wind-Tunnel Investigation of a High-Critical-Speed Fuselage Scoop Including the Effects of Boundary Layer. NACA ACR No. L5BOla, February 1945.
- Nichols, Mark R., and Goral, Edwin B.: A Low-Speed Investigation of Fuselage-Side Air Inlet for Use at Transonic Flight Speeds. NACA RM No. L7A06, April 1947.

Submerged

- Becker, John V., and Baals, Donald D.: Wind-Tunnel Tests of a Submerged-Engine Fuselage Design. NACA ACR, October 1940.
- Frick, Charles W., Davis, Wallace F., Randall, Lauros M., and Mossman, Emmet A.: An Experimental Investigation of NACA Submerged Duct Entrances. NACA ACR No. 5120, October 1945.
- Mossman, Emmet A., and Gault, Donald E.: Development of NACA Submerged Inlets and a Comparison with Wing Leading-Edge Inlets for a 1/4-Scale Model of a Fighter Airplane. NACA RM No. A7A31, August 1947.

DUCTS

- Becker, John V., and Baals, Donald D.: Wind-Tunnel Tests of a Submerged-Engine Fuselage Design. NACA ACR, October 1940.
- Dearborn, C. H., and Silverstein, Abe: Drag Analysis of Single-Engine Military Airplanes Tested in the NACA Full-Scale Wind Tunnel. NACA ACR, October 1940.

DUCTS (Continued)

- Katzoff, S.: The Design of Cooling Ducts with Special Reference to the Boundary Layer at the Inlet. NACA ACR, December 1940.
- Rogallo, F. M.: Internal Flow Systems for Aircraft. NACA TR No. 713, 1941.
- Rubert, Kennedy F., and Knopf, George S.: A Method for the Design of Cooling Systems for Aircraft Power-Plant Installations. NACA ARR, March 1942.
- Becker, John V., and Baals, Donald D.: The Aerodynamic Effects of Heat and Compressibility in the Internal Flow Systems of Aircraft. NACA ACR, September 1942.
- Joyner, Upshur T., and Palmer, Carl B.: An Experimental Survey of Flow across Banks of Elliptical and Pointed Tubes. NACA ARR, January 1943.
- Wood, George P., and Brevoort, Maurice J.: Design, Selection, and Installation of Aircraft Heat Exchangers. NACA ARR No. 3G31, July 1943.
- Marquardt, R. E.: A Study of Cooling and Exhaust Disposal in Submerged Engine Installations. NACA ACR No. 3J28, October 1943.
- Nelson, W. J., and Czarnecki, K. R.: Wind-Tunnel Investigation of Wing Ducts on a Single-Engine Pursuit Airplane. NACA ARR No. 3J13, October 1943.
- MacLachlan, Robert: Wind-Tunnel Investigation of Flow through an Air Duct for a Psychrometer Unit. NACA MR, May 1944.
- Henry, John R.: Design of Power-Plant Installations. Pressure-Loss Characteristics of Duct Components. NACA ARR No. L4F26, June 1944.
- Nielsen, Jack N.: High-Altitude Cooling. Part III Radiators. NACA ARR, September 1944.
- Williams, David T.: High-Altitude Cooling. Part II Air-Cooled Engines. NACA ARR, September 1944.
- Katzoff, S.: High Altitude Cooling. V Cowling and Ducting. NACA ARR No. L4Illd, September 1944.
- Nelson, W. J., Czarnecki, K. R., and Harrington, Robert D.: Full-Scale Wind-Tunnel Investigation of Forward Underslung Cooling Air Ducts. NACA ARR No. L4H15, October 1944.





DUCTS (Continued)

- Baals, Donald D.: Bibliography and Review of Technical Information Relating to Design of High-Speed Aircraft. NACA MR No. L5All, January 1945.
- Hicks, Bruce L.: Addition of Heat to a Compressible Fluid in Motion. NACA ACR E5A29, February 1945.
- Boelter, L. M. K., Martinelli, R. C., Romie, F. E., and Morrin, E. H.: An Investigation of Aircraft Heaters. XVIII A Design Manual for Exhaust-Gas and Air Heat Exchangers. NACA ARR 5A06, August 1945.
- Guentert, D. C., Todd, D. J., and Simmons, W. P., Jr.: Flow Tests of an NACA-Designed Supercharger Inlet Elbow and the Effects of Various Components on the Flow Characteristics at the Elbow Outlet. NACA TN No. 1148, October 1946.
- Kantrowitz, Arthur: The Formation and Stability of Normal Shock Waves in Channel Flows. NACA TN No. 1225, March 1947.
- Ilgmann, G., and Moller, E.: Three-Component Force and Mass-Flow Measurements on a Jet Nacelle. NACA TM No. 1149, June 1947.
- Hicks, Bruce L., Montgomery, Donald J., and Wasserman, Robert H.: The One-Dimensional Theory of Steady Compressible Fluid Flow in Ducts with Friction and Heat Addition. NACA TN No. 1336, July 1947.
- Ellerbrock, H. H., Jr., Wcislo, C. R., and Dexter, H. E.: Analysis, Verification, and Application of Equations and Procedures for the Design of Exhaust-Pipe Shrouds. NACA TN No. 1495, December 1947.

Diffusers

- Peters, H.: Conversion of Energy in Cross-Sectional Divergences under Different Conditions of Inflow. NACA TM No. 737, March 1934.
- McLellan, Charles H., and Nichols, Mark R.: An Investigation of Diffuser-Resistance Combinations in Duct Systems. NACA ARR, February 1942.
- Kantrowitz, Arthur, Street, Robert E., and Erwin, John R.: Study of the Two-Dimensional Flow through a Converging-Diverging Nozzle. NACA CB No. 3D24, April 1943.
- Silverstein, Abe, and Kinghorn, George F.: Improved Baffle Designs for Air-Cooled Engine Cylinders. NACA ARR No. 3H16, August 1943.
- Czarnecki, K. R., and Nelson, W. J.: Wind-Tunnel Investigation of Rear Underslung Fuselage Ducts. NACA ARR No. 3121, September 1943.





Diffusers (Continued)

- Donaldson, Coleman duP.: Effects of Interaction between Normal Shock and Boundary Layer. NACA CB No. 4A27, January 1944.
- Henry, John R.: Design of Power-Plant Installations Pressure-Loss Characteristics of Duct Components. NACA ARR No. L4F26, June 1944.
- Biebel, William J.: Low-Pressure Boundary-Layer Control in Diffusers and Bends. NACA ARR No. L5C24, April 1945.
- Kantrowitz, Arthur, and Donaldson, Coleman duP.: Preliminary Investigation of Supersonic Diffusers. NACA ACR No. L5D20, May 1945.
- Perl, W., and Tucker, M.: A General Representation for Axial-Flow Fans and Turbines. NACA ARR No. E5E04, June 1945.
- Ellis, Macon C., Jr., and Brown, Clinton E.: Analysis of Supersonic Ram-Jet Performance and Wind-Tunnel Tests of a Possible Supersonic Ram-Jet Airplane Model. NACA ACR No. L5L12, December 1945.
- Brown, Clinton E.: Internal and External Aerodynamics of Ducted Bodies at Supersonic Speeds. NACA CB No. 16B26, April 1946.
- Hill, Paul R.: Parameters Determining Performance of Supersonic Pilotless Airplanes Powered by Ram-Compression Power Plants. NACA ACR No. L6D17, June 1946.
- Ferri, Antonio, and Nucci, Louis M.: Preliminary Investigation of a New Type of Supersonic Inlet. NACA CRM No. L6J31, November 1946.
- Bohanon, H. R., Gabriel, David S., and Essig, Robert H.: Jet Diffuser for Simulating Ram Conditions on a Turbojet Engine Static Test Stand. NACA RM No. E6K29, January 1947.
- Kantrowitz, Arthur: The Formation and Stability of Normal Shock Waves in Channel Flows. NACA TN No. 1225, March 1947.
- Wyatt, DeMarquis D., and Hunczak, Henry R.: An Investigation of Convergent-Divergent Diffusers at Mach Number 1.85. NACA CRM No. E6K21, April 1947.
- Brown, W. Byron: Friction Coefficients in a Vaneless Diffuser. NACA TN No. 1311, May 1947.
- Oswatitsch, Kl.: Pressure Recovery for Missiles with Reaction Propulsion at High Supersonic Speeds (The Efficiency of Shock Diffusers). NACA TM No. 1140, June 1947.
- Moeckel, W. E., Connors, J. F., and Schroeder, A. H.: Investigation of Shock Diffusers at Mach Number 1.85. I Projecting Single-Shock Cones. NACA CRM No. E6K27, June 1947.





Diffusers (Continued)

- Dennard, John S.: An Investigation of the Low-Speed Characteristics of Two Sharp-Edge Supersonic Inlets Designed for Essentially External Supersonic Compression. NACA CRM No. L7D03, June 1947.
- Evvard, John C., and Blakey, John W.: The Use of Perforated Inlets for Efficient Supersonic Diffusers. NACA RM No. E7C26, June 1947.
- Moeckel, W. E., Connors, J. F., and Schroeder, A. H.: Investigation of Shock Diffusers at Mach Number 1.85. II Projecting Double-Shock Cones. NACA RM No. E6L13, June 1947.
- Hicks, Bruce L., Montgomery, Donald J., and Wasserman, Robert H.: The One-Dimensional Theory of Steady Compressible Fluid Flow in Ducts with Friction and Heat Addition. NACA TN No. 1336, July 1947.
- Weise, A.: The Separation of Flow Due to Compressibility Shock. NACA TM No. 1152, July 1947.
- Brown, W. Byron: Method of Designing and Predicting the Frictional Losses in Vaneless Diffusers and Scrolls. NACA TN No. 1311, July 1947.
- Pierpont, P. Kenneth: Investigation of Suction Slot Shapes for Controlling a Turbulent Boundary Layer. NACA TN No. 1292, July 1947.
- Tetervin, Neal: A Review of Boundary Layer Literature. NACA TN No. 1384, July 1947.
- Moeckel, W. E., and Connors, J. F.: Investigation of Shock Diffusers at Mach Number 1.85. III Multiple-Shock and Curved-Contour Projecting Cones. NACA RM No. E7F13, August 1947.
- Brown, W. Byron, and Bradshaw, Guy R.: Method of Designing Vaneless Diffusers and Experimental Investigation of Certain Undetermined Parameters. NACA TN No. 1426, September 1947.
- Gourzhienko, G. A.: The Turbulent Flow in Diffusers of Small Divergence Angle. NACA TM No. 1137, October 1947.

Nozzles

- Prandtl, L.: General Considerations on the Flow of Compressible Fluids. NACA TM No. 805, October 1936.
- Kantrowitz, Arthur, Street, Robert E., and Erwin, John R.: Study of the Two-Dimensional Flow through a Converging-Diverging Nozzle. NACA CB No. 3D24, April 1943.





Nozzles (Continued)

- Kantrowitz, Arthur, and Huber, Paul W.: Heat-Capacity Lag in Turbine-Working Fluids. NACA RB No. L4E29, May 1944.
- Henry, John R.: Design of Power-Plant Installations Pressure-Loss Characteristics of Duct Components. NACA ARR No. L4F26, June 1944.
- Kisenko, M. S.: Comparative Results of Tests on Several Different Types of Nozzles. NACA TM No. 1066, June 1944.
- Emmons, Howard W.: The Theoretical Flow of a Frictionless, Adiabatic, Perfect Gas Inside of a Two-Dimensional Hyperbolic Nozzle. NACA TN No. 1003, May 1946.
- Pinkel, Benjamin, and Karp, Irving M.: Performance Charts for a Jet-Propulsion System Consisting of a Compressor, a Combustion Chamber, and a Turbine. NACA ARR No. E6E14, June 1946.
- Sauer, R.: Method of Characteristics for Three-Dimensional Axially Symmetrical Supersonic Flows. NACA TM No. 1133, January 1947.
- Eggink: Compression Shocks of Detached Flow. NACA TM No. 1150, June 1947.
- Sauer, R.: General Characteristics of the Flow through Nozzles at Near Critical Speeds. NACA TM No. 1147, June 1947.
- Heybey: Analytical Treatment of Normal Condensation Shock. NACA TM No. 1174, July 1947.
- Hicks, Bruce L., Montgomery, Donald J., and Wasserman, Robert H.: The One-Dimensional Theory of Steady Compressible Fluid Flow in Ducts with Friction and Heat Addition. NACA TN No. 1336, July 1947.
- Kuhl, H.: Preliminary Report on the Fundamentals of the Control of Turbine-Propeller Jet Power Plants. NACA TM No. 1172, July 1947.

Pipes

- Prandtl, L.: Turbulent Flow. NACA TM No. 435, October 1927.
- Prandtl, L.: Recent Results of Turbulence Research. NACA TM No. 720, August 1933.
- Tollmien, W.: General Instability Criterion of Laminar Velocity Distributions. NACA TM No. 792, April 1936.





Pipes (Continued)

- Frossel, W.: Flow in Smooth Straight Pipes at Velocities above and below Sound Velocity. NACA TM No. 844, January 1938.
- Mayer, Erwin: Effect of Transition in Cross-Sectional Shape on the Development of the Velocity and Pressure Distribution of Turbulent Flow in Pipes. NACA TM No. 903, August 1939.
- Lelchuk, V. L.: Heat Transfer and Hydraulic Flow Resistance for Streams of High Velocity. NACA TM No. 1054, December 1943.
- Henry, John R.: Design of Power-Plant Installations Pressure-Loss Characteristics of Duct Components. NACA ARR No. L4F26, June 1944.
- Nielsen, Jack N.: Compressibility Effects on Heat Transfer and Pressure Drop in Smooth Cylindrical Tubes. NACA ARR No. 14C16, October 1944.
- Keenan, Joseph H., and Neumann, Ernest P.: Friction in Pipes at Supersonic and Subsonic Velocities. NACA TN No. 963, January 1945.
- Hicks, Bruce L.: Addition of Heat to a Compressible Fluid in Motion. NACA ACR No. E5A29, February 1945.
- Kantrowitz, Arthur: The Formation and Stability of Normal Shock Waves in Channel Flows. NACA TN No. 1225, March 1947.
- v. Baranoff, A.: Tunnel Correction for Compressible Subsonic Flow. NACA TM No. 1162, July 1947.
- Hicks, Bruce L., Montgomery, Donald J., and Wasserman, Robert H.: The One-Dimensional Theory of Steady Compressible Fluid Flow in Ducts with Friction and Heat Addition. NACA TN No. 1336, July 1947.
- Smith, Norman F.: Numerical Evaluation of Mass-Flow Coefficient and Associated Parameters from Wake-Survey Equations. NACA TN No. 1381, August 1947.

Bends

- McLellan, Charles H., and Bartlett, Walter A., Jr.: Investigation of Air Flow in Right-Angle Elbows in a Rectangular Duct. NACA ARR, October 1941.
- Nelson, W. J., and Czarmecki, K. R.: Wind-Tunnel Investigation of Carburetor-Air Inlets. NACA ARR, February 1942.
- Nichols, Mark R.: Investigation of Flow through an Intercooler Set at Various Angles to the Supply Duct. NACA ARR, May 1942.
- Weske, John R.: Pressure Loss in Ducts with Compound Elbows. NACA ARR, February 1943.





Bends (Continued)

- Henry, John R.: Design of Power-Plant Installations Pressure-Loss Characteristics of Duct Components. NACA ARR No. L4F26, June 1944.
- Guentert, D. C., Todd, D. J., and Simmons, W. P., Jr.: Flow Tests of an NACA-Designed Supercharger Inlet Elbow and the Effects of Various Components on the Flow Characteristics at the Elbow Outlet. NACA TN No. 1148, October 1946.

EXITS

- Oestrich, Hermann: Prospects for Jet Propulsion of Airplanes with Special Reference to Exhaust Gases. NACA Miscellaneous Paper No. 34, May 1932.
- Rogallo, F. M.: Internal-Flow Systems for Aircraft. NACA TN No. 777, October 1940.
- Becker, John V., and Baals, Donald D.: Wind-Tunnel Tests of a Submerged-Engine Fuselage Design. NACA ACR, October 1940.
- Becker, John V.: Wind-Tunnel Tests of Air Inlet and Outlet Openings on a Streamline Body. NACA ACR, November 1940.
- Pinkel, Benjamin, Turner, L. Richard, and Voss, Fred: Design of Nozzles for the Individual Cylinder Exhaust Jet Propulsion System. NACA ACR April 1941.
- Becker, John V., and Baals, Donald D.: High-Speed Tests of a Ducted Body with Various Air-Outlet Openings. NACA ACR, May 1942.
- Turner, L. Richard, and Humble, Leroy V.: The Effect of Exhaust-Stack Shape on the Design of Performance of the Individual Cylinder Exhaust-Gas Jet-Propulsion System. NACA ARR, November 1942.
- Marquardt, R. E.: A Theoretical and Experimental Investigation of Exhaust Ejectors for Cooling at Low Speeds. NACA ACR No. 3GO5, July 1943.
- Marquardt, R. E.: A Study of Cooling and Exhaust Disposal in Submerged Engine Installations. NACA ACR No. 3J28, October 1943.
- Corrsin, Stanley: Investigation of Flow in an Axially Symmetrical Heated Jet of Air. NACA ACR 3L23, December 1943.
- Manganiello, Eugene J., and Bogatsky, Donald: An Experimental Investigation of Rectangular Exhaust-Gas Ejectors Applicable for Engine Cooling. NACA ARR No. E4E31, May 1944.

Contraction



EXITS (Continued)

- Ribner, Herbert S.: Field of Flow about a Jet and Effect of Jets on Stability of Jet-Propelled Airplanes. NACA ACR No. L6Cl3, April 1946.
- Gillis, Clarence L., and Weil, Joseph: Some Notes on the Effects of Jet-Exit Design on Static Longitudinal Stability. NACA MR No. 16D30a, May 1946.
- Falk, H.: The Influence of the Jet of a Propulsion Unit on Nearby Wings. NACA TM No. 1104, September 1946.
- Guentert, D. C., Todd, D. J., and Simmons, W. P., Jr.: Flow Tests of an NACA-Designed Supercharger Inlet Elbow and the Effects of Various Components on the Flow Characteristics at the Elbow Outlet. NACA TN No. 1148, October 1946.
- Fleming, William A.: Characteristics of a Hot Jet Discharged from a Jet-Propulsion Engine. NACA RM No. E6L27a, December 1946.

JET PUMPS AND THRUST AUGMENTORS

- Jacobs, Eastman N., and Shoemaker, James M.: Tests on Thrust Augmentors for Jet Propulsion. NACA TN No. 431, September 1932.
- Schubauer, G. B.: Jet Propulsion with Special Reference to Thrust Augmentors. NACA TN No. 442, January 1933.
- Pinkel, Benjamin, Turmer, L. Richard, and Voss, Fred: Design of Nozzles for the Individual Cylinder Exhaust Jet Propulsion System. NACA ACR, April 1941.
- Flugel, Gustav: The Design of Jet Pumps. NACA TM No. 982, July 1941.
- Manganiello, Eugene J.: A Preliminary Investigation of Exhaust-Gas Ejectors for Ground Cooling. NACA ACR, July 1942.
- Morrisson, Reeves: Jet Ejectors and Augmentation. NACA ACR, September 1942.
- Marquardt, R. E.: A Theoretical and Experimental Investigation of Exhaust Ejectors for Cooling at Low Speeds. NACA ACR No. 3G05, July 1943.
- Marquardt, R. E.: Tests of an Annular Ejector System for Cooling Aircraft Engines. NACA ACR No. 3J27, October 1943.
- Marquardt, R. E.: A Study of Cooling and Exhaust Disposal in Submerged Engine Installations. NACA ACR No. 3J28, October 1943.





JET PUMPS AND THRUST AUGMENTORS (Continued)

- Manganiello, Eugene J., and Bogatsky, Donald: An Experimental Investigation of Rectangular Exhaust-Gas Ejectors Applicable for Engine Cooling. NACA ARR No. E4E31, May 1944.
- Bohanon, H. R., and Wilcox, E. C.: Theoretical Investigation of Thrust Augmentation of Turbojet Engines by Tail-Pipe Burning. NACA RM No. E6LO2, January 1947.
- Ellerbrock, Herman H., Jr.: General Treatment of Compressible Flow in Ejectors and Example of Its Application to Problem of Effect of Ejector Addition on Thrust of Jet-Propulsion Units. NACA RM No. 16L23, June 1947.

COMPRESSORS

- Sorensen, E.: Constant-Pressure Blowers. NACA TM No. 927, January 1940.
- Betz, Albert: Diagrams for Calculation of Airfoil Lattices. NACA TM No. 1022, July 1942.
- Polikovsky, V., and Nevelson, M.: The Performance of a Vaneless Diffuser Fan. NACA TM No. 1038, December 1942.
- Struve, E.: Theoretical Determination of Axial Fan Performance. NACA TM No. 1042, April 1943.
- Dovjik, S., and Polikovsky, W.: Experimental Investigation of a Model of a Two-Stage Turboblower. NACA TM No. 1043, April 1943.
- Keenan, Joseph H., Kaye, Joseph, Rieke, Carol A., and Morrisson, Reeves: The Calculated Performance of Certain Jet Propulsion Devices. NACA ACR No. 3D29, April 1943.
- Air-Flow-Research Staff: NACA Investigation of a Jet-Propulsion System Applicable to Flight. NACA ACR No. I4D26, April 1944.
- Pinkel, Benjamin, and Hall, Eldon W.: Study of Jet-Propulsion System Compressing Blower, Burner, and Nozzle. NACA ACR No. E4E06, May 1944.
- Bogdonoff, Seymour M., and Bogdonoff, Harriet E.: Blade Design Data for Axial-Flow Fans and Compressors. NACA ACR No. L5F07a, July 1945.
- Kantrowitz, Arthur: The Supersonic Axial-Flow Compressor. NACA ACR No. L6D02, April 1946.



COMPRESSORS (Continued)

- Benser, William A., Wilcox, Ward W., and Voit, Charles H: Charts for the Rapid Calculation of the Work Required to Compress Dry Air. NACA TN No. 1043, April 1946.
- Sinnette, John T., Jr., and Voss, William J.: Extension of Useful Operating Range of Axial-Flow Compressors by Use of Adjustable Stator Blades. NACA ACR No. E6E02, May 1946.
- Bullock, Robert O., Keetch, Robert C., and Moses, Jason J.: A Method of Matching the Performance of Compressor Systems with That of Aircraft Power Sections. NACA ARR No. E6D17, May 1946.
- Laskin, Eugene B., and Kofskey, Milton G.: Increase in Stable-Air-Flow Operating Range of a Mixed-Flow Compressor by Means of a Surge Inhibitor. NACA RM No. E7005, April 1947.
- Anderson, Robert J., Ritter, William K., and Dildine, Dean M.: An Investigation of the Effect of Blade Curvature on Centrifugal-Impeller Performance. NACA TN No. 1313, May 1947.
- Kahane, A.: Investigation of Axial-Flow Fan and Compressor Rotors Designed for Three-Dimensional Flow. NACA RRM No. L7D02a, May 1947.
- Boxer, Emanuel: Influence of Wall Boundary Layer upon the Performance of an Axial-Flow Fan Rotor. NACA RRM No. 16J18b, May 1947.
- Erwin, John R., Wright, Linwood C., and Kantrowitz, Arthur: Investigation of an Experimental Supersonic Axial-Flow Compressor. NACA RM No. 16J0lb, August 1947.

Cascades

- Kantrowitz, Arthur, and Daum, Fred L.: Preliminary Experimental Investigation of Airfoils in Cascade. NACA CB. July 1942.
- Kantrowitz, Arthur, and Erwin, John R.: Cascade Investigation of Buckets for a Modern Aircraft Turbosupercharger. NACA ACR No. 14J25, November 1944.
- Zimney, Charles M., and Lappi, Viola M.: Data for Design of Entrance Vanes from Two-Dimensional Tests of Airfoils in Cascade. NACA ACR No. L5G18, October 1945.
- Kantrowitz, Arthur: The Supersonic Axial-Flow Compressor. NACA ACR 1602, April 1946.

THE RESERVE OF THE PARTY OF THE

Bogdonoff, Seymour M., and Hess, Eugene E.: Axial-Flow Fan and Compressor Blade Design Data at 52.5° Stagger and Further Verification of Cascade Data by Rotor Tests. NACA TN No. 1271, April 1947.



Cascades (Continued)

- Diesendruck, Leo: Iterative Interference Methods in the Design of Thin Cascade Blades. NACA TN No. 1254, May 1947.
- Goldstein, Arthur W., and Jerison, Meyer: Isolated and Cascade Airfoils with Prescribed Velocity Distribution. NACA TN No. 1308, May 1947.
- Katzoff, S., Finn, Robert S., and Laurence, James C.: Interference Method for Obtaining the Potential Flow Past an Arbitrary Cascade of Airfoils. NACA TN No. 1252, May 1947.
- Bogdonoff, Seymour M.: Performances of Compressor Blade Cascades at High Mach Numbers. NACA RM No. L7Dlla, June 1947.
- Spurr, Robert A., and Allen, H. Julian: A Theory of Unstaggered Airfoil Cascades in Compressible Flow. NACA RM No. A7E29, September 1947.

FANS

- Perl, W., and Tucker, M.: A General Representation for Axial-Flow Fans and Turbines. NACA ARR No. E5E04, June 1945.
- Bogdonoff, Seymour M., and Bogdonoff, Harriet E.: Blade Design Data for Axial-Flow Fans and Compressors. NACA ACR No. L5F07a, July 1945.
- Perl, W., and Epstein, H. T.: Some Effects of Compressibility on Flow through Fans and Turbines. NACA ARR No. E5G03, August 1945.
- Bogdonoff, Seymour M., and Herrig, L. Joseph: Performance of Axial-Flow Fan and Compressor Blades Designed for High Loadings. NACA TN No. 1201, February 1947.
- Kahane, A.: Charts of Pressure Rise Obtainable with Airfoil-Type Axial-Flow Cooling Fans. NACA TN No. 1199, March 1947.
- Bogdonoff, Seymour M., and Hess, Eugene E.: Axial-Flow Fan and Compressor Blade Design Data at 52.5° Stagger and Further Verification of Cascade Data by Rotor Tests. NACA TN No. 1271, April 1947.
- Anderson, Robert J., Ritter, William K., and Dildine, Dean M.: An Investigation of the Effect of Blade Curvature on Centrifugal-Impeller Performance. NACA TN No. 1313, May 1947.
- Kahane, A.: Investigation of Axial-Flow Fan and Compressor Rotors Designed for Three-Dimensional Flow. NACA RRM No. L7D02a, May 1947.





FANS (Continued)

Boxer, Emanuel: Influence of Wall Boundary Layer upon the Performance of an Axial-Flow Fan Rotor. NACA RRM No. 16J18b, May 1947.

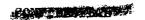
TURBINES

- Keenan, Joseph H., Shapiro, Ascher H., Kaye, Joseph, and Rieke, Carol A.: Systems CET, CEHT, and CETX Analysis of a Power Plant of High Efficiency and Great Overload Capacity. NACA ACR 3H31, August 1943.
- Kantrowitz, Arthur; Effects of Heat-Capacity Lag in Gas Dynamics. NACA ARR No. 4A22, January 1944.
- Kantrowitz, Arthur, and Huber, Paul W.: Heat-Capacity Lag in Turbine-Working Fluids. NACA RB No. L4E29. May 1944.
- Perl, W., and Tucker, M.: A General Representation for Axial-Flow Fans and Turbines. NACA ARR No. E5E04, June 1945.
- Perl, W., and Epstein, H. T.: Some Effects of Compressibility on Flow through Fans and Turbines. NACA ARR No. E5GO3. August 1945.
- Trautwein, Elmer E., and Gabriel, David S.: The Effect of Two Inlet Duct Designs on Turbine Efficiency. NACA CB No. E5K21, December 1945.

INSTRUMENTS

- Mock, W. C., Jr., and Dryden, H. L.: Improved Apparatus for the Measurement of Fluctuations of Air Speed in Turbulent Flow. NACA TR No. 448, 1932.
- Lindsey, W. F.: Calibration of Three Temperature Probes and a Pressure Probe at High Speeds. NACA ARR, April 1942.
- Smith, Norman F.: NACA Mach Number Indicator for Use in High-Speed Tunnels. NACA ACR No. 3G31, July 1943.
- Huber, Paul W., and Kantrowitz, Arthur: A Device for Measuring Sonic Velocity and Compressor Mach Number. NACA RRM No. 16Kl4, January 1947.
- Humphreys, Milton D.: Effects of Compressibility and Large Angles of Yaw on Pressure Indicated by a Total-Pressure Tube. NACA RB No. L5C30, March 1947.
- Runyan, Raymond A., and Jeffries, Robert J.: Empirical Method for Frequency Compensation of the Hot-Wire Anemometer. NACA TN No. 1331, June 1947.
- Kovasznay, Laszlo: Calibration and Measurement in Turbulence Research by the Hot-Wire Method. NACA TM No. 1130, June 1947.





RESEARCH TECHNIQUES

- Preiswerk, Ernst: Application of the Methods of Gas Dynamics to Water Flows with Free Surface. Part I. NACA TM No. 934, March 1940.
- Corson, Blake W., Jr.: The Belt Method for Measuring Pressure Distribution. NACA RB, February 1943.
- Orlin, W. James, Lindner, Norman J., and Bitterly, Jack G.: Application of the Analogy between Water Flow with a Free Surface and Two-Dimensional Compressible Gas Flow. NACA TN No. 1185, February 1947.
- Kovasznay, Laszlo: Calibration and Measurement in Turbulence Research by the Hot-Wire Method. NACA TM No. 1130, June 1947.
- Zobel, Th.: Development and Construction of an Interferometer for Optical Measurements of Density Fields. NACA TM No. 1184, September 1947.



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PART II REPORTS OTHER THAN NACA

REPORTS OTHER THAN NACA Part II

AERODYNAMICS

FUNDAMENTAL AERODYNAMICS

COMPRESSIBLE FLOW

Subsonic and Mixed Flows

- von Karman, Th., and Tsien, H. S.: Boundary Layer on Compressible Fluids. (U. S.) Journal of the Aeronautical Sciences, Vol. 5, No. 6, April 1938, P. 227-232.
- Chapman, Sydney, and Cowling, T. G.: The Mathematical Theory of Non-Uniform Gases. Cambridge University Press, 1939.
- Arnold: Density Measurements to Determine the Structure of Compression Shocks on Wedges. (U. S.) Cornell Aeronautical Laboratory. (Translation) (German Report) Kochel 66/192, July 1945.
- Peritsky, H.: Compressible Flows Obtainable from Two-Dimensional Flows through the Addition of a Constant Normal Velocity. (U. S.) Journal of Applied Mechanics, Vol. 13, No. 1, March 1946.
- Meyer, R. E.: The Method of Characteristics for Compressible Flow Involving Two Independent Variables. (British) ARC Report No. 9907, F.M. 978, August 1946.
- Bickley, W. G.: Mathematical Tables for Compressible Fluid Flow. (British) ARC Report No. 10, 141, F.M. 1029, December 1946.
- Schultz-Grunow: Three Contributions on Non-Stationary One-Dimensional Gas Flow. (British) Volkenrode Rpts. and Trans. No. 233, March 1947.
- Groth, E.: Compressible Subsonic Flow with Local Supersonic Speeds Round a Waved Wall. (British) Volkenrode Rpts. and Trans. No. 57, April 1947.
- Schetzer, J. D., and Lauritsen, C. H.: Aerodynamic Relations with Variable Specific Heats. Project "WIZARD," University of Michigan, April 1947.
- Korbacher, Ing. G. K.: The Deviation of Small Particles from a Curved Streamline. (British) NGTE Memorandum No. M. 17, May 1947.
- Friedrichs, K. O.: Formation and Decay of Shock Waves. (U.S.) New York University Inst. for Math. and Mech., IMM-NYU 158, May 1947.
- Liepmann, H. W., and Puckett, Allen E.: Introduction to Aerodynamics of a Compressible Fluid. (U.S.) John Wiley and Sons, Inc., 1947.



Subsonic and Mixed Flows (Continued)

Sauer, R.: The Method of Characteristics for the One-Dimensional Unsteady Flow of a Gas. (U.S.) Brown University Div. of Appl. Math. Translation A9-T-2, 1948.

Supersonic Flow

- Ackeret, J.: Gas Dynamics. (British) Translation from Handbuch der Physik, Vol. 7, Chap. 5, 1930.
- Heybey: Analytical Treatment of the Normal Condensation Shock. (U.S.) WVA Archiv Nr. 66/72, March 1942.
- Temple, G.: The Method of Characteristics in Supersonic Flow. (British) A.R.C. R. & M. No. 2091, January 1944.
- Fage, A., and Sargent, R. F.: Shock Wave and Boundary Layer Phenomena near a Flat Surface. (British) A.R.C. Report No. 8964, F.M. 843, A.C. 12, September 1945.
- Cope, W. F. (Part I), and Hartree, D. R. (Part II): Laminar Boundary Layer Separation in Supersonic Flow. (British) A.R.C. Report No. 9286, F.M. 874, November 1945.
- OSRD: Optical Studies of Strong Shock Waves. (U.S.) OSRD Report No. 5613, January 1946.
- Goldstein, Sidney: On the Behavior of Dry Air in a Supersonic Wind Tunnel. (British) A.R.C. Wind Tunnel Design Committee 9573 (T.P. 147, F.M. 915), April 1946.
- Meyer, R. E.: The Method of Characteristics for Problems of Compressible Flow Involving Two Independent Variables. (British) A.R.C. Report No. 9907, F.M. 978, August 1946.
- Grunewald: Mach Numbers Attainable in the Supersonic Wind Tunnel with Supersaturation of Air. (U.S.) Naval Ordnance Laboratory Mem. No. 8700, September 1946.
- Herbert, P. J., and Older, S. J.: Tables for Use in the Investigation of Supersonic Fields of Flow by the Method of Characteristics. (British) R.A.E., T.N. C.W. 1, November 1946.
- Bickley, W. G.: Mathematical Tables for Compressible Fluid Flow. (British) A.R.C. Report No. 10,141, F.M. 1029, December 1946.
- Tsien, Hsue-shen: One-Dimensional Flows of a Gas Characterized by van der Waal's Equation of State. (U.S.) Journal of Math. and Physics, Vol. XXV, No. 6, January 1947.





Supersonic Flow (Continued)

- Shapiro, Ascher H., and Edelman, G. M.: Method of Characteristics for Two-Dimensional Supersonic Flow-Graphical and Numerical Procedures. (U.S.) Journal of Applied Mechanics, Vol. 17, No. 2, February 1947.
- Schultz-Grunow: Three Contributions on Non-Stationary One-Dimensional Gas Flow. (British) Volkenrode Rpts. and Trans. No. 233, March 1947.
- Harrison, F. B., and Bleakney, Walker: Remeasurement of Reflection Angles in Regular and Mach Reflection of Shock Waves. (U.S.) Princeton University Report, March 1947.
- Guderley, G.: Method of Characteristics of Two-Dimensional and Axially Symmetrical Supersonic Flows. (Canadian) Tech. Translation No. TT-8, April 1947.
- Weise, A.: Theory of the Branched Shock Wave. (Canadian) Tech. Translation No. TT-16, June 1947.
- Lukasiewicz, J.: Humidity Effects in Supersonic Flow of Air. (British) RAE Aero. 2211, SD 20, July 1947.
- Heybey: The Prandtl-Busemann Method for Plane Supersonic Flow. (U.S.)
 Naval Ordnance Laboratory NOLM 9250, August 1947.
- Yoshihara, Hideo: The Limiting Line and Its Relation to the Critical Mach Number. (U.S.) AFAMC Tech. Rpt. No. F-TR-1149-ND, November 1947.
- Sauer, R.: The Method of Characteristics for the One-Dimensional Unsteady Flow of a Gas. (U.S.) Brown University Grad. Div. of Appl. Math. Translation A9-T-2, 1948.
- Davidson, I. M., and Kennard, Margaret G.: A Note on the Supersonic Compression Shock in Two Dimensions. (British) NGTE Report.
- Eggink: Flow Structure and Pressure Recovery in Supersonic Tunnels. (U.S.) University of Michigan Translation.

VISCOUS FLOW

Laminar and Turbulent Flow

- Simmons, L. F. G., and Dewey, N. S.: Photographic Records of Flow in the Boundary Layer. (British) R. & M. 1335, May 1930.
- Green, J. J.: The Breakaway of the Boundary Layer on a Circular Cylinder and an Aerofoil. (British) R. & M. 1396, May 1930.
- Tanner, T.: Movement of Smoke in the Boundary Layer of an Aerofoil without and with Slot. (British) R. & M. 1352, July 1930.





Laminar and Turbulent Flow (Continued)

- Buri, A.: A Method of Calculation for the Turbulent Boundary Layer with Accelerated and Retarded Basic Flow. (British) Translation MAP Report No. RIP 2073 BT47, 1931.
- Gruschwitz, E.: Turbulent Friction Layer in Two-Dimensional Flow with Falling and Rising Pressure. (Photostat and translation from: Ingenieur Archiv., September 1931, Vol. 2, No. 3, p. 321-346). November 1931.
- von Karman, Th.: Turbulence and Skin Friction. (U.S.) Journal of the Aeronautical Sciences, Vol. 1, No. 1, January 1934.
- Goldstein, S.: The Similarity Theory of Turbulence, and Flow between Parallel Planes and through Pipes. (British) Proceedings, Royal Society, April 1937, P. 473-496.
- Weske, John R.: Reduction of Skin Friction of a Flat Plate by Means of Discharge of Air through Circular Openings in the Plate. (Appendix 1: Investigation of the Action of Condenser Scoops Based upon Model Tests). (U.S.) Case School of Applied Science, 1938.
- Fage, A., and Preston, J. H.: On Transition from Laminar to Turbulent Flow in the Boundary Layer. (British) Proceedings, Royal Society, June 1941, P. 201-227.
- Gerber, Alfred: Investigation on Removal of the Boundary Layer by Suction. (U.S.) AAF AMC Translation No. 353, September 1941.
- Fage, Arthur, and Sargent, R. F.: Design of Suction Slots. (British) R. & M. No. 2127, February 1944.
- Pillow, A. F.: A Review of Hydrodynamic Stability and Its Bearing on Transition to Turbulent Flow in the Boundary Layer. (British) Council for Scientific and Industrial Research, Division of Aeronautics, May 1945.
- Pringle, G. E., and Main-Smith, J. D.: Boundary-Layer Transition Indicated by Sublimation. (British) R.A.E. Tech. Note No. Aero 1652, June 1945.
- Cope, W. F. (Part I), and Hartree, D. R. (Part II): Laminar Boundary Layer Separation in Supersonic Flow. (British) A.R.C. Report No. 9286, F.M. 874, November 1945.
- Watson, E. J.: Free Streamline Suction Slots. (British) A.R.C. Report No. 9411, F.M. 892, February 1946.
- Thwaites, B.: Notes on German Theoretical Work on Porous Suction. (British) A.R.C. Report No. 9672, F.M. 930, June 1946.



Laminar and Turbulent Flow (Continued)

- Cumming, Betty L.: A Review of Turbulence Theories. (Australian)
 Australian Council for Aeronautics Report No. ACA-27, August 1946.
- Preston, J. H.: Visualization of Boundary Layer Flow. (British) A.R.C. Report No. 10,094, F.M. 1016, Perf. 249, November 1946.
- Ehret and Hahnemann: Heat Transmission in Slot Flows. (British) Rpts. and Trans. No. 297, MOS (A) Volkenrode, February 1947.
- Coleman, W. S.: Analysis of the Turbulent Boundary Layer for Adverse Pressure Gradients Involving Separation. (U.S.) Quarterly of Applied Mathematics, July 1947.
- Lewis, J. A.: Monograph V Boundary Layer in Compressible Fluid. (U.S.) AAF AMC Tech. Report No. F-TR-1179-ND, February 1948.
- Hoerner, Sighard: Influence of Compressibility upon the Transition Point of the Boundary Layer. AAF Translation No. F-TR-2184-ND.

Jet Mixing

- Keenan, Joseph H., and Neumann, Ernest P.: A Simple Air Ejector. (U.S.) Journal of Applied Mechanics, Vol. 9, No. 2, June 1942.
- Minchin, L. T.: The Mixing of Gas Streams. (British) R.A.E. Rept. No. E. 3965, January 1943.
- Minchin, L. T. . and Zaczek, B. Y.: Mixing of Gas Streams by "Sandwich-Scoop." (British) Royal Aircraft Establishment Technical Note Eng. 130, April 1943.
- Squire, H. B., and Trouncer, J.: Round Jets in a General Stream. (British) A.R.C. R.& M. No. 1974 (7591), January 1944.
- Kunze, N.: Flow Photographs of a Jet Leaving a Flat Surface Obliquely. (German) AVA (Gottingen) Untersuchungen and Mitteilungen No. 3140, August 1944.
- Pabst: The Spreading of Hot Gas Jets in an Air Stream. (German) Untersuchungen and Mitteilungen No. 8004, August 1944 (Part I), No. 8007, September 1944 (Part II).
- Ehret and Hahnemann: Heat Transmission in Slot Flows. (British) Rpts. and Trans. No. 297, MOS (A) Volkenrode, February 1947.
- Altman, David: An Investigation of Shock Waves in Jets. (U.S.) Calif. Inst. of Tech. Progress Report No. 9-3, May 1947.





Jet Mixing (Continued)

- Corrsin, Stanley, and Uberoi, Mahinder S.: Further Experiments on the Flow and Heat Transfer in a Heated Turbulent Air Jet. (U.S.) Calif. Inst. of Tech., August 1947.
- Staiger, Kurt, and Kamm, W.I.E.: Development of Intermittent Jets for Aircraft. (U.S.) USAF Rpt. No. F-TR-2111 ND (revised) GS-AAF-Wright Field No. 31, November 1947.
- Braun and Retert: Damping Effect of a Conducted Jet. (British)
 Ministry of Supply Volkenrode Translation Rpt. No. L.F. 114, V. 494.

Heating, Heat Transfer, and Additions of Heat

- Grimison, E. D.: Correlation and Utilization of New Data on Flow Resistance and Heat Transfer for Cross Flow of Gases over Tube Banks. (U.S.) ASME Trans., Vol. 59, No. 7, p. 583-594, October 1937.
- Bailey, N. P.: The Thermodynamics of Air at High Velocities. (U.S.) Journal of Aeronautical Sciences, Vol. 11, July 1944, P. 227.
- Chambre, P., and Lin, C.: On the Steady Flow of a Gas through a Tube with Heat Exchange on Chemical Reaction. (U.S.) Journal of Aeronautical Sciences, Vol. 13, October 1946, P. 537.
- McAdams, W. H., Nicolai, L. A., and Keenan, J. H.: Measurements of Recovery Factors and Coefficients of Heat Transfer in a Tube for Subsonic Flow of Air. (U.S.) Trans. AICE, Vol. 42, Oct.-Dec., 1946, P. 907.
- Keenan, J. H., and Neumann, E. P.: Measurement of Friction in a Pipe for Subsonic and Supersonic Flow of Air. (U.S.) Journal of Applied Mechanics, Trans. ASME, Vol. 13, 1946, P. A-91.
- Ehret and Hahnemann: Heat Transmission in Slot Flows. (British) Rpts. and Trans. No. 297, MOS (A) Volkenrode, February 1947.
- Hicks, W. E., and Douglass, Wm. M.: Theoretical Investigation of Temperature Problems in Wing-Ramjets for Transonic Airplanes. (U.S.) University of Southern California Rept. 3-3, March 1947.
- Bailey, N. P.: Abrupt Energy Transformation in Flowing Gases. (U.S.) Transactions of the A.S.M.E., Vol. 69, No. 7, October 1947.
- Shapiro, Ascher H., and Hawthorne, W. R.: The Mechanics and Thermodynamics of Steady One-Dimensional Gas Flow. (U.S.) Journal of Applied Mechanics, Vol. 14, No. 4, December 1947.





Heating, Heat Transfer, and Additions of Heat (Continued)

Glaser, H.: Heat Transfer and Pressure Drop in Heat Exchangers with Laminar Flow. (British) Rpts. and Trans. No. 818, March 1947.

BODIES

DUCTED BODIES

Singham, J. R., Pruden, F. W., and Tomlinson, R. C.: Tests on a Working Model Ram Jet in a Supersonic Wind Tunnel. (British) NGTE Rept. No. R. 20, November 1947.

INTERNAL AERODYNAMICS

Pankhurst, R. C.: Interim Note on A. G. Rawcliffe's Suction Slot Ducting. (British) ARC Rept. 10,360, FM 1068 Perf. 289, February 1947.

NOSE INLETS

Central and Annular

- Bristol Aeroplane Co., Ltd., Staff, Project Office: Tests on a 1/5-Scale Model of the Buckingham Cowl in the R.A.E. Small Wind Tunnels. (British) A.R.C. No. 9840 AP 573. Report No. FGE/A/50, March 1943.
- Roberts, Howard E.: Investigation of the Aerodynamic Characteristics of Nose Inlets for High-Speed Aircraft. Model 558. (U.S.) Douglas Aircraft Company, Inc. Report ES-6967, December 1945.
- Squire, H. B., and Morgan, M. E.: A Review of Duct Entry Design for Jet-Propelled Aircraft. (British) Royal Aircraft Establishment RAE Aero. 2121, March 1946.
- Rushton, S. G.: Performance Curves for Propulsive Duct Intakes. (British) Ministry of Supply, NGTE, Power Jets Rept. R. 1208, May 1946.
- Doddridge, W. P.: The Effect of a Yawed Intake Airflow on the Performance of an Axial Jet Engine Fitted with an Airscrew Spinner. (British)
 National Gas Turbine Establishment NGTE Memo. M. 5, September 1946.
- Hahnemann, H., and Bammert, K.: Tests in an Electrolytic Tank on a Ramming and Non-Ramming Air Intake for a Gas Turbine Power Plant. (British) Joint Intelligence Objectives Agency. November 1946.
- Davidson, I. M., and Umney, L. E.: On the Preliminary Tests of an Annular Intake at Supersonic Speeds. (British) Ministry of Supply NGTE Memo. No. M.4, April 1947.



Central and Annular (Continued)

- Dailey, C. L., and Wood, F. C.: Ram Jet Performance Methods (Navy Contract NOa(s)(8257). (U.S.) Navy Research Project. USCAL Report No. 4-1, June 1947.
- Davidson, I. M., and Umney, L. E.: Concerning the Annular Air Intake in Supersonic Flight. (British) NGTE Report No. R.16. August 1947.
- Kuchemann, D., and Weber, J.: J. Cooling. 2 The Processes of the Flow. 2.4 The Outflow Duct. 2.5 The Radiator Fairing. AVA Monographs; General Editor: A. Betz. Reports and Translations No. 918, October 1947.
- Kuchemann, D., and Weber, J.: J. Cooling. 4 Special Types of Installation. 4.1 Underslung Radiator and Wing Radiator. AVA Monographs; General Editor: A. Betz. Reports and Translations No. 920, October 1947.
- Kuchemann, D., and Weber, J.: J₁ Cooling; 4, Special Types of Installations, 4.2 Ring Radiator, 4.3 Comparison of Cooler Arrangements of Stern Engines, Trend of Development. (British) AVA Monographs, Reports and Translations No. 921, October 15, 1947.
- LaVallee, Stanley, and Billman, Louis S.: Pressure Recovery in a Ram-Jet Diffuser with a Conical Nose and an Annular Inlet. (U.S.) United Aircraft Corporation, Project Meteor Rept. UAC-20, April 1948.
- Richardson, Andre: Preliminary Report on Wind-Tunnel Investigations of the Flow in the Nose Intake and Fuselage Duct of a 1/4-Scale Model of the Douglas (El Segundo) 558 Airplane. (U.S.) California Institute of Technology.
- Reichardt, H.: Cavitation Models for the Determination of Constant Pressure Boundaries of Bodies of Revolution with Through Flow. (U.S.) Translation No. CGD-127. (German Rept. UM 6606, April 1944).
- Kuchemann, D., and Weber, J.: Concerning the Flow over the Covering of Annular Shapes. (U.S.) Translation No. CGD-125. (German Rept. FB 1236/5, March 1942).
- Kuchemann, D., and Weber, J.: On the Flow around Ring-Shaped Cowling. Part III - Thin Ring Profiles. (U.S.) Translation No. CGD-130. (German Rept. FB 1236/3, June 1941).
- McCloy, R. W.: The Air Intake for the Ejector Jet. (U.S.) University of Illinois, Institute of Aeronautics, Rept. No. 9-3.





LEADING-EDGE INLETS, EXITS - WINGS

- Warden, R., and Cheers, F.: Notes on Bellows Flaps. (British) A.R.C. Aerodynamic Subcommittee 5582 (Ae.-1911), January 1942.
- Brown, C. Anderton, and Remfry, J.: Ducted Radiators: Performance Characteristics of Two Types of Fin and Tube Matrix. (British)
 Royal Aircraft Establishment RAE E.3944, June 1942.
- Hughes, N. J. S.: Two-Dimensional Constant Velocity Ducts. (British) Royal Aircraft Establishment RAE Aero. 1996, December 1944.
- Spence A., and Seddon, J.: A Review of Wing Leading Edge Entry Design Based on the Results of Model Tests at the R.A.E. (British) Royal Aircraft Establishment RAE Report No. Aero. 1989, December 1944.
- Seddon, J., and Spence, A.: Wind-Tunnel Measurements on Internal Loss on a Full-Scale Model of a Wing Root Intake Duct for a Proposed Jet-Propelled Fighter. (British) R.A.E. Tech. Note Aero. 1737, December 1945.
- Seiferth, R.: The Most Important Experimental Research Work of the Last Time and Proposals about Reports Still to be Written. (British) MAP Volkenrode, Repts. and Trans. No. 35, February 1946.
- Squire, H. B., and Morgan, M. E.: A Review of Duct Entry Design for Jet-Propelled Aircraft. (British) Royal Aircraft Establishment RAE Aero. 2121, March 1946.
- Douglass, Wm. M., and Hicks, W. E.: Wing-Ramjets for Transonic Airplanes. (U.S.) Univ. of Southern Calif. USCAL Rept. 3-1, October 1946.
- Hicks, W. E., and Douglass, Wm. M.: Theoretical Investigation of Temperature Problems in Wing-Ramjets for Transonic Airplanes. (U.S.)
 Univ. of Southern Calif. USCAL Rept. 3-3, March 1947.
- Scherer, A.: Investigations on Nose Inlets of Rectangular Wings. (British) MAP Volkenrode Repts. and Trans. 828, July 1947.
- Küchemann, D., and Weber, J.: J₁ Cooling; 4, Special Types of Installations, 4.2 Ring Radiator, 4.3 Comparison of Cooler Arrangements of Stern Engines, Trend of Development. (British) AVA Monographs, Reports and Translations No. 921, October 15, 1947.

SIDE INLETS

Wood, R. McKinnon: The Design of Side Entries to Ducts in Aircraft. (British) A.R.C. Aerodynamics Subcommittee 8528. Report No. Ac. 2746, E.C. 50, I.C.E. 1689, March 1945.





SIDE INLETS (Continued)

Squire, H. B., and Morgan, M. E.: A Review of Duct Entry Design for Jet-Propelled Aircraft. (British) Royal Aircraft Establishment R.A.E. Aero. 2121, March 1946.

Scoops

- Rokus, F., and Troller, Th.: Tests on Ventilation Openings for Aircraft. (Concerning Scoops and Hoods Covering the Openings for Intake and Discharge of Air and Lifting Gas for Various Purposes, Primarily, However, for Airship Use). (U.S.) Journal of Aero. Sciences, April 1936, P. 203-208.
- Weske, John R.: Reduction of Skin Friction of a Flat Plate by Means of Discharge of Air through Circular Openings in the Plate. (Appendix 1: Investigation of the Action of Condenser Scoops Based upon Model Tests). (U.S.) Case School of Applied Science, 1938.
- Warden, R., and Cheers, F.: Notes on Bellows Flaps. (British) A.R.C. Aerodynamics Subcommittee 5582 (Ae.-1911), January 1942.
- Minchin, L. T., and Zaczek, B. Y.: Mixing of Gas Streams by "Sandwich-Scoop." (British) Royal Aircraft Establishment Technical Note Eng. 130, April 1943.
- Clegern, W. A.: Preliminary Report Cooling of Hot Cylinder Heads by Means of a Separate Air Blast. Pratt and Whitney R-1830-43 Engine. B-24D Airplane. (U.S.) Consolidated Vultee Aircraft Corporation Report ZA-32-061, May 1943.
- Hahnemann and Bammert, K.: Tests in an Electrolytic Tank on a Ramming and Non-Ramming Air Intake for a Gas Turbine Power Plant. (British) Joint Intelligence Objectives Agency, November 1946.
- AFAMC: Report on Icing Tests for Screens in Air Intake Ducts. (U.S.) AFAMC, Wright Field Technical Intelligence Trans. F-TS-2625-RE, June 1947.
- Kuchemann, D., and Weber, J.: J. Cooling. 2 The Processes of the Flow. 2.4 The Outflow Duct. 2.5 The Radiator Fairing. AVA Monographs; General Editor: A. Betz. Reports and Translations No. 918, October 1947.
- Kuchemann, D., and Weber, J.: J. Cooling. 4 Special Types of Installation. 4.1 Underslung Radiator and Wing Radiator. AVA Monographs; General Editor: A. Betz. Reports and Translations No. 920, October 1947.
- Kuchemann, D., and Weber, J.: J₁ Cooling; 4, Special Types of Installations, 4.2 Ring Radiator, 4.3 Comparison of Cooler Arrangements of Stern Engines, Trend of Development. (British) AVA Monographs, Reports and Translations No. 921, October 15, 1947.



Scoops (Continued)

Hewins, E. F., and Reilly, J. R.: Condenser Scoop Design. (U.S.) Society of Naval Architects and Marine Engineers No. 9.

DUCTS

- Gibson, A. H.: On the Flow of Water through Pipes and Passages Having Converging or Diverging Boundaries. (British) Proceedings, Royal Society (London), Series A, Vol. 83, No. 563, March 1910, P. 366-378.
- Joukowsky, N. E., and Tschentzoff, N. G.: Flow of Water in an Open Channel and Flow of Gases in Tubes. (German) Zeitschrift für Angewandte Mathematik und Mechanik, Vol. 7, August 1927. P. 217-319.
- Buri, A.: A Method of Calculation for the Turbulent Boundary Layer with Accelerated and Retarded Basic Flow. (British) Translation MAP Report No. RIP 2073 BT47, 1931.
- Farren, W. S.: Air Flow. (British) Journal of the Royal Aero. Society, V. 36, June 1932, P. 451-472.
- Majazu, Atsusbi: Velocity and Pressure Distributions of a Viscous Fluid Flowing in Converging and Diverging Boundaries. (Japanese) SME/1934 V. 37, No. 207, November 1933.
- Hartshorn, A. S.: Note on Performance Data for Honeycomb Radiators in a Duct. (British) R. & M. No. 1740, December 1935.
- Griffith, A. A., and Meredith, F. W.: The Possible Improvement in Aircraft Performance Due to the Use of Boundary Layer Suction. (British) R.A.E. E. 3501, March 1936.
- Goldstein, S.: The Similarity Theory of Turbulence, and Flow between Parallel Planes and through Pipes. (British) Proceedings, Royal Society, April 1937, P. 473-496.
- Taylor, G. I.: Flow in Pipes and between Parallel Planes. (British) Proceedings, Royal Society, April 1937, P. 496-506.
- Aschenbrenner, Josef: Non-Stationary Gas Flow in Pipes with Variable Cross-Section. (German) Forschung auf dem Gebiete des Ingenieurwesens, V. 8, No. 3, May/June 1937, P. 118-130.
- Mayer, E.: Influence of Change of Cross-Sectional Shape on Velocity and Pressure Distribution in Turbulent Flow. (German) Forschung auf dem Gebiete des Ingenieunwesens, V. 9, No. 2, March/April 1938, P. 108.
- Patterson, G. N.: Estimation and Prevention of Leak Drag. (British) R.A.E. Report No. B.A. 1476 (Rev.), September 1938.





- Millikan, Clark B.: A Critical Discussion of Turbulent Flow in Channels and Circular Tubes. California Institute of Technology, Guggenheim Aeronautical Laboratory Pub. No. 114, 1938. (Reprint from International Congress for Applied Mechanics, Proceedings, 1938, P. 386-392).
- Collar, A. R.: The Effect of a Gauze on the Velocity Distribution in a Uniform Duct. (British) A.R.C. R. & M. No. 1867, February 1939.
- Patterson, G. N.: The Design of Aeroplane Ducts Rules to be Followed for the Reduction of Internal and External Drag. (U.S.) Aircraft Engineering, July 1939, P. 263-268.
- von Karman, Th.: The Analogy between Fluid Friction and Heat Transfer. (U.S.) ASME Trans. California Institute of Technology, Guggenheim Aeronautical Laboratory Pub. No. 118, July 1939.
- Boynton, E. R., Culp, H. P., Lebenbaum, P., Poritsky, H., and Streid, D. C.: Laws and Data of Fluid Flow. (U.S.) General Electric Company T.R. 18545-I, 1939.
- Ludwieg, Hubert: Potential Flows with Unstable Boundary Conditions. (German) Georg-August-Universitat Gottingen, 1939.
- Kravath, F. F.: Duct Pressures. Their Correct Interpretation. From Heating and Ventilating, February 1940, P. 19-22.
- Norris, R. H., and Streid, D. D.: Laminar-Flow Heat-Transfer Coefficients for Ducts. ASME Transactions, Vol. 62, No. 6, August 1940, P. 525-533.
- von Karman, Th.: Compressibility Effects in Aerodynamics. (U.S.)
 California Institute of Technology, Guggenheim Aeronautical Laboratory
 Pub. No. 140, January 1941. (Reprint from Journal of the Aero.
 Sciences, Vol. 8, No. 9, July 1941, P. 337, 356).
- List, H.: Flow Phenomena in the Induction Pipes of Internal Combustion Engines. (British) Translation, Ministry of Aircraft Production, R.T.P. TR 1208. From Zeitschrift des Wereines deutscher Ingenieure, Vol. 85, No. 13, March 1941, P. 301-305.
- Throller, Th.: Aerodynamics of Supercharging. (U.S.) Mass. Institute of Tech., May 1941.
- Smith, F., and Stott, J. R.: Losses in Cabin Heating Ducts. (British) R.A.E. B.A. 1683 (B.A. 1683a), June 1941, (Aug. 1941, Add.).
- Rokus, F. G.: Report on an Air Intake Equipped with Flexible Sides for Controlling Air Flow through an Air Duct. (U.S.) Daniel Guggenheim Airship Institute, September 1941.



- R.A.E.: Note on Aero Engine Exhaust Systems. (British) R.A.E. Inst. 541, October 1941.
- Hawthorne, W. R.: Simplified Analysis of Frictional and Compressible Flow in Pipes. (British) R.A.E. E.3929, March 1942.
- Brewster, James H., III: Model Nacelle Tests of a Single-Stage Axial Flow Fan. (U.S.) United Aircraft Corporation Report R-143-B, July 1942.
- Minchin, L. T.: The Mixing of Gas Streams. (British) R.A.E. Rept. No. E. 3965, January 1943.
- Reeman, J.: Note on Design of Exhaust Ducts. (British) R.A.E. Tech. Note Eng. 137, April 1943.
- Kramers, H. A., and Kistemaker: On the Slip of a Diffusing Gas Mixture along a Wall. From Physica X, Vol. 8, October 1943.
- Schultz-Grunow, F.: Non-Steady, Spherically-Symmetrical Gas Motion and Non-Steady Gas Flow in Nozzles and Diffusers. (British) M.A.P. R:T.P. 2071, 1943.
- Hawthorne, W. R., and Cohen, H.: Pressure Losses and Velocity Changes Due to Heat Release and Mixing in Frictionless, Compressible Flow. (British) R.A.E. E. 3997, January 1944.
- Mobley, Charles A.: Essentials of Airplane Duct Design. From Aero Digest, January 1944, P. 122, 124, 126, 128-129, 210, 213-214.
- Remfry, J.: Charge Cooling: Heat Transfer and Pressure Drop Characteristics of a Honeycomb Matrix with 5 mm x 300 mm Hexagonal Tubes at 7.6 mm pitch. (British) R.A.E. Rept. No. E.4101, January 1944.
- Temple, G., and Yarwood, Jennifer: Two-Dimensional Aerofoils and Ducts with Uniform Velocity Distribution. (British) R.A.E. S.M.E. 3280 (aero. 1919), February 1944.
- Huron, F. H., and Nelson, N. R.: Investigation of Supersonic Flow in Nozzles and Tubes. (U.S.) Mass. Institute of Tech. February 1944.
- Kalinske, A. A., and Pien, C. L.: Eddy Diffusion. (U.S.) Industrial and Engineering Chemistry, Industrial Edition, March 1944, P. 220-223.
- Hughes, N. J. S.: Stream Expansion with Discontinuity in Velocity on the Boundary. (British) A.R.C. R. & M. 1978 (7768), March 1944.
- Rubert, Kennedy F.: Aerodynamics of Cooling Ducts. (U.S.) S.A.E. April 1944.

CAME TO BE STORY



- Seddon, J., and Spence, A.: Note on the Pressure-Drop Characteristics of Baffles for Use in Wind-Tunnel Model Tests of Cooling-Duct Systems. (British) RAE Rept. No. Aero. 1929, April 1944.
- Friedrichs, K. O., and Courant, R.: Supersonic Flow and Shock Waves. A Manual on the Mathematical Theory of Non-Linear Wave Motion. (U.S.) New York University AMG-NYU-62. National Defense Research Committee AMP 38.2R. OSRD Report 4266, August 1944.
- Ackeret, J.: Hydraulic Aspect of Flow in Tubes and Nozzles. (British) Translation from Handbuch der Physik, Vol. 7, 1944, P. 289-342.
- Berry, J. R.: Criteria for the Selection of Aircraft Heat Exchangers and for the Design of Ducting. Army Air Forces T.R. 5154, October 1944.
- Hughes, N. J. S.: Two-Dimensional Constant Velocity Ducts. (British) R.A.E. Aero. 1996, December 1944.
- Batchelor, G. K.: On the Concept and Properties of the Idealized Hydrodynamic Resistance. (Australian) Australian Council for Aeronautics Report ACA-13, January 1945.
- Jamison, R. R., and Mordell, D. L.: The Compressible Flow of Fluids in Ducts. (British) A.R.C. R. & M. 2031, March 1945.
- Pringle, G. E.: Potential Flow in Monotonic Contractions. (British) R.A.E. Tech. Note Aero. 1630, April 1945.
- Pillow, A. F.: A Review of Hydrodynamic Stability and Its Bearing on Transition to Turbulent Flow in the Boundary Layer. (British) Council for Scientific and Industrial Research, Division of Aeronautics, May 1945.
- Bureau of Aeronautics, Navy Department: Aeronautical Specifications for the Calculation of Duct Losses, Turbo-Jet and Gas Turbine Engines. NavAer Specif. SR-160, July 1945.
- Atkins, A. O. L.: Two-Dimensional Supersonic Channel Design Part I. (British) Rep. No. F.M. 859, A.R.C., November 1945.
- Clauser, F. H.: Aerodynamics of Ducted Bodies at Supersonic Speeds. (U.S.) Douglas Aircraft Company Report SM 20076, January 1946.
- Princeton University: Pressure Survey on the Model 2 Ram-Jet. (U.S.) Bumblebee Rept. 30, February 1946.
- Singham, J. R., and Bartlett, W. J.: The Performance of Propulsive Ducts. (British) NGTE Rept. R. 1204, March 1946.

- Booton, A.B.P.: Some Calculations on the Performance of a Subsonic Propulsive Duct. (British) R.A.E. T.N. GAS. 17, April 1946.
- Rushton, S. G.: Performance Curves for Propulsive Duct Intakes. (British) Ministry of Supply, NGTE, Power Jets Rept. R. 1208, May 1946.
- Sauer, R.: Theory of Non-Stationary Gas Flow. II Plane Gas Waves with Compression Shocks. (U.S.) AFAMC Trans. 758, August 1946.
- Lighthill, M. J.: The Hodograph Transformation in Trans-Sonic Flow (1) Symmetrical Channels. (British) A.R.C. 9856, F.M. 969, September 1946.
- Coffin, J. G.: Subsonic and Supersonic Flow in Nozzles and Diffusers. (U.S.) Kaiser Cargo, Inc. Report PA-TR-1-1, Contract NOa(s) 8274, November 1946.
- Weber, J.: On the Computation of the Incoming Flow against Non-Ducted Radiators. (British) Translation. Rpts. and Trans. 313. (German Report) UM 3100 (1944)(ZWB), December 1946.
- Kuchemann, D., and Weber, J.: The Calculation of Thin Ring Profiles. (British) MAP Volkenrode Repts. and Trans. No. 858, December 1946.
- University of Southern California: A Linearized Subsonic Theory of Two-Dimensional Ducts with a Pressure Loss. (U.S.) USCAL Report No. 3-2, Contract NOa(s) 8164, January 1947.
- Shapiro, Ascher H., and Edelman, G. M.: Method of Characteristics for Two-Dimensional Supersonic Flow Graphical and Numerical Procedures. (U.S.) Mass. Inst. of Technology, Meteor Rept. No. 7, February 1947.
- Schulz-Grunow, F.: Flow Phenomena in an Impulsive Duct. (British) MOS (A) Volkenrode Repts. and Trans. No. 371, February 1947.
- Bruman, J. R.: Application of the Water Channel-Compressible Gas Analogy. (U.S.) North American Aviation, Inc. Report No. NA-47-87, March 1947.
- Richards, A. D., and Lydiard, W. G.: Gas Flow Data Sheets for Propulsive Duct Calculations. (British) NGTE Report No. R. 13, April 1947.
- Liepmann, H. W., and Laufer, John: Investigation of Turbulent Flow in a Two-Dimensional Channel. (U.S.) California Institute of Technology, June 1947.
- U.S. Strategic Air Forces in Europe: Interrogation of Professor Busemann, 25 May 1945 on Ram Jets (Lorin Ducts), Rockets, and Wind Tunnel Design for Supersonic Speeds. (U.S.) Tech. Intell. Rept. No. I-40, June 1945.



- Shapiro, Ascher H., and Hawthorne, W. R.: The Mechanics and Thermodynamics of Steady One-Dimensional Gas Flow. (U.S.) Journal of Appl. Mech., Vol. 14, No. 4, P. A-317-336, December 1947.
- Aschenbrenner, Joseph: Non-Stationary Gas Flow in Ducts of Variable Cross Section. Cornell Aeronautical Laboratory Translation.
- Busemann, A.: Gas Dynamics. Part III Orifices, Nozzles, and Diffusers. (British) Translation. MAP Rept. No. RTP 2209.
- Harrison Radiator, Division of General Motors Corporation: Comparison of Restricted and Free-Flowing Intercoolers and Duct Combinations. RE-1306.
- Kalinske, A. A., and Pien, C. L.: Eddy Diffusion. (U.S.) Industrial and Engineering Chemistry, Industrial Edition, March 1944, P. 220-223.
- Kramers, H. A., and Kistemaker: On the Slip of a Diffusing Gas Mixture along a Wall. From: Physica X, Vol. 8, October 1943.
- Laufer, John: Investigation of Turbulent Flow in a Two-Dimensional Channel. California Institute of Technology. (U.S.)
- Richardson, Andre: Preliminary Report on Wind-Tunnel Investigations of the Flow in the Nose Intake and Fuselage Duct of a 1/4-Scale Model of the Douglas (El Segundo) 558 Airplane. (U.S.) California Institute of Technology.

Diffusers

- Prandtl, L.: New Research on the Flow of Gas and Steam. (German) From Physikalische Zeitschrift, 1907, P. 23-30.
- Kroner, Richard: Experiments on Flows through Rapidly Diverging Channels. (German) Forschungsarbeiten auf dem Gebiete des Ingenieurwesens. No. 222, 1920.
- Riffart, August: On Experiments with Compression Nozzles (Diffusers). (German) Reprint from Vereines deutscher Ingenieure, 1922.
- Donche, Dr. Fritz: Flow in Divergent Cones. (U.S.) McCook Field Memo. Report 202. From V.D.I., September 1926. December 1926.
- Donche, Dr. Fritz: Diverging and Converging Turbulent Flows with Small Included Angles. (German) Forschungsarbeiten auf dem Gebiete des Ingenieurwesens No. 282, 1926.



- Vedornikoff, A. N.: Flow in Flat Diverging Channels. From Zeitschrift für angewandte Mathematik und Mechanik, Vol. 7, August 1927. (German).
- Nikuradse, Johann: Flow of Water in Converging and Diverging Channels. Forschungsarbeiten auf dem Gebiete des Ingenieurwesens No. 289, 1929.
- Schrenk, Oskar: The Boundary Layer as a Means of Controlling the Flow of Liquids and Gases. (Diffusers are Conically Shaped Intermediate Members Connecting Two Pipes of Different Cross Sections). (German) From Die Naturwissenschaften, Vol. 17, No. 34, August 1929.
- Szymanski, Piotr: Flow of Viscous Fluid in a Conical Pipe of Circular Section. Work carried out by the Warsaw Aerodynamical Institute under the direction of Professor C. Witoszynski, No. 6, 1932.
- Walter, P. A.: The Problem of Poiseuille Flow (Flow in a Cylindrical Tube) Extended to the Case of a Conical Diffuser of Small Cone Angle and Its Application to Turbulence Theory. (Russian) Central Aero-Hydrodynamical Institute, Russia Trans. No. 156, 1933.
- Margoulis, Wladimer: Experimental and Theoretical Research in Fluid Mechanics and Heat Transfer in Moving Fluids from 1930-1933. Part I: Research on Diffusers and the Suction of the Boundary Layer. Technique Aeronautique, Second Quarter, 1934.
- Ushakov, K.: Gause- (Gauze-) Screened Diffuser. (Russian) See: CAHI, Russia. Trans. No. 211, 1935, P. 161-165.
- McDonald, George G.: The Effect of Variable Specific Heats on the Conditions at the Throat of a Convergent-Divergent Nozzle. (U.S.) Philosophical Magazine, February 1937, P. 302-306.
- Rosenbrook, G.: Instability of the Laminar Boundary Layer in a Slightly Divergent Channel. (German Text) ZAMM, February 1937, P. 8-24.
- Patterson, G. N.: Modern Diffuser Design. The Efficient Transformation of Kinetic Energy to Pressure. (U.S.) From Aircraft Engineering, Vol. 10, No. 115, September 1938, P. 267-273.
- Miyadzu, Atsushi: Investigation of the Energy Loss in Diverging Flow of Water (Parts 1-3). (Japan) Transactions of the Society of Mech. Engineers, Vol. 5, No. 18, February 1939.
- Asano, Tomokazu, Oisi, Tuneo, and Tubone, Masaru: Statistical Study on the Turbulent Flow in Rectangular Pipes with Diverging Boundaries. (Japan) Transactions of the Society of Mech. Engineers, Vol. 6, No. 22, February 1939.





- Dryden, Hugh L.: Turbulence and Diffusion. (U.S.) Reprint from Industrial and Engineering Chemistry, Vol. 31, No. 4, April 1939, P. 416-425.
- Polzin, J.: Flow Investigations in a Two-Dimensional Diffuser. (British) Ministry of Aircraft Production R.T.P. Tr. 1286, From Ingenleur-Archiv, Vol. 11, No. 5, October 1940.
- Puffer, S. R.: Effect of Boundary Layer Removal In Diffusers. (U.S.) General Electric Company Bulletin No. 867, January 1941.
- Busemann, A.: Laval Nozzles for Uniform Supersonic Flow. (U.S.) Transfrom Zeitschrift des Vereines deutscher Ingenieure, Vol. 84, No. 45, November 1940. Tech. Tr. No. 152, R. A. Castleman, June 1941.
- Hawthorne, W. R.: Simplified Analysis of Frictional and Compressible Flow in Pipes. (British) R.A.E. E. 3929, March 1942.
- Williams, Glenn C., and Quinn, John C., Lt., U.S.N.R.: Ram Jet Power Plants. (U.S.) O.S.R.D. Jet Propelled Missiles Panel, Office of Field Service, May 1945.
- Smith, C. W.: Diffuser Boundary Layer Research Tests. (U.S.) General Electric Company Bulletin DF-80977, September 1942.
- Temple, G., and Yarwood, Jennifer: Compressible Flow in a Convergent-Divergent Nozzle. (British) A.R.C. R. & M. No. 2077 (6347), September 1942.
- Simons, F. P.: Investigation on Diffusers for Supersonic Wind Tunnels. Parts I and II. (German) Aerodynamisches Institut der Technischen Hochschule Aachen. Forschungsbericht Nr. 1738. Part I January 1943. Part II June 1943.
- Naumann, A.: Efficiency of Diffusers at High Subsonic Velocity. (German) ZWB Forshungsbericht Nr. 1705. Technical Institute for Aerodynamics, Aachen, March 1943.
- Crocco, Luigi: High-Speed Wind Tunnels. (U.S.) From L'Aerotecnica, Vol. XV, No. 3, 1935, P. 237-275 and L'Aerotecnica, Vol. XV, No. 7-8, P. 735-778. AFAMC Translation No. 366, July 1943.
- Bailey, W., and Roy, J.: General Aerodynamic Investigation into the Use of Split Diffusers. (British) R.A.E. Tech. Note Eng. 217, November 1943.
- Joseph Lucas Research Laboratories: The Performance of the Lucas Straight-Through Combustion Chamber MK 2. (British) B.40, 112, November 1943.



- Temple, G.: The Method of Characteristics in Supersonic Flow. (British) A.R.C. R. & M. No. 2091, January 1944.
- Wood, R. McKinnon: Streamline Walls in High Speed Tunnels. (British) A.R.C. Report No. 7332, T.P. 11, January 1944.
- Smith, Richard H.: Progress Report on Conical Diffuser Research for NACA at M.I.T. at Discontinuation. (U.S.) (Report to NACA on Contract NAw-1233). Mass. Institute of Tech., January 1944.
- Squire, H. B., and Hogg, H.: Diffuser-Resistance Combinations in Relation to Wind-Tunnel Design. (British) R.A.E. Aero 1933 and Add. April 1944. Add. by H. B. Squire and N. J. S. Hughes, July 1944.
- Emerson, W. S., and Young, A. D.: High-Speed Flow in Slowly Convergent and Divergent Pipes and Channels. Part I Meridian Profiles for Pipes and Channels with Constant Axial Mach Number. (British) RAE Report No. Aero. 1957, July 1944.
- Oswatitsch and Bohm: Aerodynamic Forces and Flow Phenomena of Driven Missiles. (U.S.) Translation. Curtiss Wright Corporation, August 1944.
- Oswatitsch and Bohm: Air Forces and Flow Phenomena on Self-Propelled Missiles. (U.S.) Translation. Curtiss Wright Corporation, October 1944.
- Squire, H. B., and Bekassy, J.: Wind Tunnel Cooling by Air Exchange: Theory and Model Tests. (British) R.A.E. Tech. Note Aero 1531, October 1944.
- Knowler, A. E., and Holder, D. W.: Effect of Variation on the Diffuser on the Performance of a High-Speed Tunnel of the Injector Type. A.R.C. Tech. Pub. No. 80, Ae. 2708, February 1945.
- Jamison, R. R., and Mordell, D. L.: The Compressible Flow of Fluids in Ducts. (British) A.R.C. R. & M. 2031, March 1945.
- Greene, Wm. L., and Geiger, Fred W.: Interrogation of Dr. Oswatitsch of KWI at Gottingen, Germany, Regarding Design and Development of Supersonic Diffusers and Their Application to Athoyds for Projectiles on Aircraft. U.S. Strategic Air Forces in Europe, Tech. Intell. Rept. I-83, August 1945.
- Eichelberger, J. F.: Numerical Values of Pressure Drag Coefficient and Diffuser Efficiency from New Mexico Firings. (U.S.) Johns Hopkins Applied Physics Laboratory CM-83, August 1945.





- Oswatitsch: Pressure Recovery for Missiles with Reaction Propulsion at High Supersonic Speeds. (U.S.) Curtiss Wright Corporation, October 1945.
- Murnaghan, F. D., Stewart, H. J., Charters, A. C., Clauser, F. H., Brown, Clinton E., Puckett, A. E., Knight, R. C., Hilton, W. F., Bailey, J. E., Lin, C. C., Pooler, L. G., and Roberts, R. B.: Papers Presented at the Symposium on Aerodynamics Held Dec. 6 and 7, 1945. Johns Hopkins Applied Physics Laboratory Bumblebee Report 29.
- Davis, Thomas, and Sellars, J. R.: Analysis of Internal Flow in Ram Jets. Johns Hopkins Applied Physics Laboratory Bumblebee Report 32, March 1946.
- McClure, J. J.: Survey of Supersonic Diffuser Types. United Aircraft Corporation, Chance Vought Aircraft, Report R-2100-10, April 1946.
- Weber, J.: On Betz's Computation of the Diffuser Losses. (British) Ministry of Aircraft Production, Reports and Translations 44, April 1946.
- Lukasiewicz, J.: Supersonic Diffusers. (British) R.A.E. Rept. GAS. 8, June 1946.
- Young, A. D., and Emerson, W. S.: Note on the Theoretical Incompressible Flow Losses in Smooth, Conical Diffusers. (British) R.A.E. Tech. Note Aero. 1814, July 1946.
- Bohm, H., and Koppe, M.: The Influence of Friction on Steady Diffuser Flows at High Speed. (British) Joint Intelligence Objectives Agency, July 1946.
- Ruden, P.: Wind Tunnel Measurements on a Rotationally Symmetrical Entry Diffuser. (Canadian) Canadian National Research Laboratory Technical Translation No. TT-23, August 1947. (German Rept. FB 1427/1, March 1941).
- Squire, H. B.: Experiments on Conical Diffusers. (British) RAE No. Aero. 2216, August 1947.
- Rozzell, G. M., Yatsko, J., Zirin, L. T., and Beil, W. J.: A Simplified Method of Calculating and Presenting Ram Jet Performance. (U.S.) Curtiss-Wright Corporation Report M-46-2, September 1946.
- Dailey, C. L., and Wood, F. C.: Ram Jet Performance Methods. (U.S.) University of Southern California. USCAL Report No. 4-1, Navy Contract NOa(s) 8257, October 1946.



- Griffith, T. J., Mock, B. L., Wisemann, H. E., and Zirin, L. I.: A Simplified Method of Calculating and Presenting Turbo-Jet Performance. (U.S.) Curtiss-Wright Corporation Report M-46-3, October 1946.
- Smelt, R.: High-Speed Airflow. A Critical Review of German Research Methods, Equipment, and Results. (U.S.) From Flight, October 17, 1946, P. 417-419 and Flight, October 24, 1946, P. 443-446.
- Coffin, J. G.: Subsonic and Supersonic Flow in Nozzles and Diffusers. (U.S.) Kaiser Cargo, Inc. Report No. PA-TR-1-1, November 1946.
- Hall, Newman A.: Theoretical Performance of Convergent-Divergent Nozzles. (U.S.) United Aircraft Corporation Meteor Report UAC-1, December 1946.
- Weber, J.: On the Computation of the Incoming Flow against Non-Ducted Radiators. (British) Ministry of Aircraft Production Reports and Translations 313, December 1946.
- Fiul, Abraham: A Linearized Subsonic Theory of Two-Dimensional Ducts with a Pressure Loss. (U.S.) University of Southern California USCAL Report 3-2, January 1947.
- Riley, C. F., and Reinhardt, T. F.: Analysis of the Conical Shock Diffuser. (U.S.) Bell Aircraft Corporation Report 56-982-004, January 1947.
- Singham, J. R., and Bartlett, W. J.: The Performance of Propulsive Ducts. (British) Ministry of Supply, NGTE, Power Jets Report No. R. 1204, March 1947.
- Zirin, Louis I.: A Study of Supersonic Diffusers. (U.S.) Curtiss-Wright Corporation Report E-47-1, March 1947.
- Dailey, C. L.: Comparison of Supersonic Diffusers Summary Report on Contract NOa(s) 8257, Item I(a). (U.S.) University of Southern California USCAL Report No. 4-3, April 1947.
- DeVault, R. T.: Progress Report for March 1947. Navy Ram Jet Development. (U.S.) University of Southern California, April 1947.
- DeVault, R. T.: Summary of Subsonic Ram Jet Development. (U.S.)
 University of Southern California USCAL Report No. 2-11, April 1947.
- Mock, B. L., and Kent, E. J.: Ram Jet Performance with Fixed Diffusers. (U.S.) Curtiss-Wright Corporation Report No. E-47-5. Contract W33-038-ac-14161. Project MX-772. May 1947.





- Dailey, C. L.: Aero-Thermodynamic Design of the C-20-1.8 Ma Ramjet. (U.S.) University of Southern California USCAL Report No. 2-7, June 1947.
- DeVault, R. T.: Progress Report for May 1947. Navy Ram Jet Development. (U.S.) University of Southern California. Rept. PR 8257-12, June 1947.
- Solomon, J.: Test of Two Chance-Vought Aircraft Supersonic Oblique-Shock Diffuser Models. (U.S.) University of Southern California USCAL Report No. 4-5, July 1947.
- Davidson, I. M., and Ummey, L. E.: Concerning the Annular Air Intake in Supersonic Flight. (British) NGTE Report No. R.16, August 1947.
- Binder, R. C.: Calculation of Diffuser Efficiency for Two-Dimensional Flow. (U.S.) Journal of Applied Mechanics, Vol. 14, No. 3, September 1947.
- Neumann, E. P., and Lustwerk, F.: Supersonic Diffusers for Wind Tunnels. (U.S.) Mass. Institute of Tech. Meteor Report No. 13, November 1947.
- Ramm, Heinrich: Phenomena in Supersonic Diffusers. (U.S.) USAF No. F-TR-2175-ND GS-AAF-Wright Field No. 43, November 1947.
- Busemann, A.: Gas Dynamics. Part III Orifices, Nozzles, and Diffusers. (British) R.T.P. Translation No. 2209.
- Dailey, C. L.: Discussion of Supersonic Diffusers. (U.S.) University of Southern California USCAL Report No. 2-3. Navy Contract NOa(s) 7598.

Nozzles

- Prandtl, L.: New Research on the Flow of Gas and Steam. (German) From Physikalische Zeitschrift, 1907.
- Lord Rayleigh: On the Discharge of Gases under High Pressures. (British) From The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, August 1916, P. 177-187.
- Stanton, T. E.: On the Flow of Gases at High Speeds. (British) From Royal Society of London, Proceedings, 1926, Vol. 111, Series A, P. 306-339.
- Nikuradse, Johann: Flow of Water in Converging and Diverging Channels. (German) Forschungsarbeiten auf dem Gebiete des Ingenieurwesens, No. 289, 1929.



Nozzles (Continued)

- Tietjens, O. G.: Flow of Gases at a Rate Exceeding the Acoustic Velocity. (U.S.) ASME, Trans. (Applied Moch.), Jan.-Apr. 1931, P. 49-55
- Crausse, E., and Baubiac, J.: Transitory Flow in Cylindrical Nozzle Containing an Obstacle. (French) Academie des Sciences, Comptes Rendus, March 1933, P. 751-753.
- Kretzschmer, Fritz: Changes in the Form of Flow in Nozzles. (German) Forschung, Jan.-Feb. 1938, P. 35-40.
- Bartocci, A.: The Reaction Force Produced by the Emission of Gas. (British) Ministry of Aircraft Production R.T.P. 2240 B.T.-97, March 1938.
- Kucheman, D., and Vardrey, F.: The Influence of the Nozzle (or of the Collector Cone) on the Measurements of Resistance in an Open Jet Wind Tunnel. (British) Ministry of Aircraft Production, February 1941.
- Roy, Maurice: Stability of Shock Waves in a Rotating Nozzle. (French) Comptes Rendus, March 1941, P. 467-469.
- Thompson, J. S., and Barnes, E. G.: Model Tests on Nozzles for Jet Propulsion. (British) R.A.E. Report No. B.A. 1700, August 1941.
- Moyes, S. J.: The Critical Flow Conditions of a Gas in Convergent Passage and the Influence of Frictional Losses. (British) A.R.C. R. and M. 2045 (6124), February 1942.
- Oswatitsch, K.: Condensation Phenomena in Supersonic Nozzles. (British) Ministry of Aircraft Production R.T.P. 1905, B.T.3, February 1942.
- Crocco, Luigi: High-Speed Wind Tunnels: (U.S.) From L'Aerotecnica, Vol. XV, No. 3, 1935, P. 237-275 and L'Aerotecnica, Vol. XV, No. 7-8, P. 735-778. AFAMC Translation No. 366, July 1943.
- Huzii, S.: On the Structure of Shock Waves. (Japan) Aero. Research Institute Imperial University Report No. 265, Vol. 19, No. 10, August 1943.
- Friedrichs, K. O.: Remarks on the Theory of Exhaust Nozzles. (U.S.) New York University AMG-NYU 30, AMP Memo. 82.1, October 1943.
- Schultz-Grunow, F.: Non-Steady Spherically-Symmetrical Gas Motion and Non-Steady Gas Flow in Nozzles and Diffusers. (British) M.A.P. R.T.P. 2071, 1943.
- Temple, G.: The Method of Characteristics in Supersonic Flow. (British) A.R.C. R. & M. No. 2091, January 1944.



Nozzles (Continued)

- Huron, F. H., and Nelson, N. R.: Investigation of Supersonic Flow in Nozzles and Tubes. (U.S.) Mass. Institute of Technology, February 1944.
- Courant, R.: Theoretical Studies on the Flow through Nozzles and Related Problems. (U.S.) New York University AMG-NYU-43, April 1944. (See also Supplement NYU AMG-NYU-77, October 1944).
- Green, J. R., and Southwell, R. V.: Relaxation Methods Applied to Engineering Problems. IX High-Speed Flow of Compressible Fluid through a Two-Dimensional Nozzle. (British) From Philosophical Transactions of the Royal Society of London, Ser. A., No. 808, Vol. 239, April 1944.
- Puckett, A. E.: Final Report on the Model Supersonic Wind Tunnel Project. (U.S.) National Defense Research Committee, Armor and Ordnance Report No. A-269 (OSRD No. 3569), April 1944.
- Eksergian, Rupen: On the Reaction of Fluids and Fluid Jets. (U.S.) Franklin Institute Journal, May 1944, P. 385-410.
- Vinti, John P.: The Flow of Compressible Gases through Nozzles. (U.S.) Aberdeen Proving Ground, Ballistic Research Lab. Report 476 (F.A. Cont. 114), July 1944.
- Fox, L., and Southwell, R. V.: On the Flow of Gas through a Nozzle with Velocities Exceeding the Speed of Sound. (British) Royal Society of London, Proceedings, August 1944.
- Burdick, George E.: The Flow of a Fluid in a Conical Nozzle. (U.S.) Mass. Institute of Technology Rocket Research Society Publication No. 4, October 1944.
- New York University: On Supersonic Compressors and Nozzles. (U.S.) NDRC AMP Report 82.2R, AMG-NYU-77, October 1944.
- Tupper, S. J.: Supersonic Flow in a Slightly Convergent Nozzle of Circular Cross-Section. (British) Ministry of Supply Armament Research Department, Theoretical Research Report 2/45, January 1945.
- Taylor, G. I.: The Boundary Layer in the Converging Nozzle of a Swirl Atomiser. (British) A.R.C. F.M.P. 8510 (F.M. 788), March 1945.
- Williams, Glenn C., and Quinn, John C., Lt., U.S.N.R.: Ram Jet Power Plants. (U.S.) OSRD Jet Propelled Missiles Panel, May 1945.
- Luskin, H., and Graham, E.: One-Dimensional Nozzle Theory with a Shock Wave Moving at a Constant Speed. (U.S.) Douglas Aircraft Corporation Report SM 11163, October 1945.

Comments

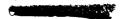
Nozzles (Continued)

- Owen, P. R.: Note on the Apparatus and Work of the W.V.A. Supersonic Institute at Kochel, S. Germany. Part II Nozzle Design and Construction. (British) R.A.E. Tech. Note No. Aero. 1712, October 1945.
- Atkin, A. O. L.: Two-Dimensional Supersonic Channel Design. (British)
 A.R.C. Report No. 9194, F. M. 859, November 1945.
- Fiul, Abraham: A Linearized Subsonic Theory of Two-Dimensional Ducts with a Pressure Loss. (U.S.) University of Southern California USCAL Report No. 3-2, January 1946.
- Foelsch, Kuno: A New Method of Designing Two-Dimensional Laval Nozzles for a Parallel and Uniform Jet. (U.S.) North American Aviation, Inc., Report NA-46-235, March 1946. (See also Amend, Report NA-46-235-1, April 1946).
- Heybey: The Behavior of Normal Compression Shocks in a Laval Nozzle. (U.S.) Cornell Aeronautical Laboratory. Translation. April 1946.
- Heybey: Analytic Treatment of Normal Condensation Shocks. (U.S.) Cornell Aeronautical Laboratory. Translation. April 1946.
- Busemann, A.: Breakaway of the Boundary Layer as Sonic Speed is Approached. (U.S.) Joint Intelligence Objectives Agency S.C.-132, July 1946.
- Lippisch, A. M., and Ringleb, F. O.: Fundamentals of Lorin Propulsion. (U.S.) Navy Bureau of Aeronautics, Technical Intelligence Liaison, Wright Field, October 1946.
- Coffin, J. G.: Subsonic and Supersonic Flow in Nozzles and Diffusers. (U.S.) Kaiser Cargo, Inc. Report PA-TR-1-1, November 1946.
- Johnstone, A. P.: The "Spill-Off" Variable Propelling Nozzle. (British) NGTE Report No. R.7, December 1946.
- Puckett, A. E.: Supersonic Nozzle Design. (U.S.) Journal of Applied Mechanics, Vol. 13, December 1946, P. A-265 A-270.
- Hall, Newman A.: Theoretical Performance of Convergent-Divergent Nozzles. (U.S.) United Aircraft Corporation Meteor Report UAC-1, December 1946.
- Schaefer, K.: On the Thermodynamics of Rocket Propulsion. I. (U.S.) AFAMC, Wright Field Translation No. 982, February 1947.



Nozzles (Continued)

- Hudson, G.: The Physical Implications of Representing Frictional Flow in Convergent Nozzles by a Law of Constant Adiabatic Efficiency. (British) NGTE Power Jets Memo. No. M. 1202, March 1947.
- Africano, A.: Effect of Altitude on Nozzle Design. (U.S.) Curtiss-Wright Corporation Report CPD No. 1, March 1947.
- Sauer, R.: General Properties of the Flow through Nozzles in the Vicinity of the Critical Speeds. (British) Rpts. and Trans. No. 487, March 1947.
- Frossel, W.: Experimental Investigation of the Compressible Flow at and in the Vicinity of a Curved Wall. (British) MOS(S) Volkenrode Repts. and Trans. No. 344, April 1947.
- Johns Hopkins University: AMC/APL/IR-64 Interim Report. (U.S.) Johns Hopkins Applied Physics Laboratory Interim Report 64, May 1947.
- West, F. L.: An Approximate Method for Predicting the Heat Transfer in a Cooled Rocket Nozzle. (British) R.A.E. Tech. Note No. Aero. 1891, S.D. 59, May 1947.
- Massachusetts Institute of Technology: Interim Progress Report of the Meteor Project. (U.S.) Mass. Institute of Technology Meteor Report 10, June 1947.
- Penner, S. S., and Altman, D.: Adiabatic Flow of Hydrogen Gas through a Rocket Nozzle with and without Composition Change. (U.S.) California Institute of Technology Progress Report No. 9-6, June 1947.
- Royle, J. K., Bowling, A. G., and Lukasiewicz, J.: Calibration of Two-Dimensional and Conical Supersonic Multi-Nozzles. (British) R.A.E. Report Aero 2221, SD 23, September 1947.
- Busemann, A.: Gas Dynamics, Part III Orifices, Nozzles, and Diffusers. (British) R.T.P. Translation No. 2209.
- Metral, A. R.: Coanda Effect on the Phenomena of Derivation of the Fluid Flow and Their Applications. (France) L'Ecale de L'Air.
- Ministry of Aircraft Production: The Lorin Nozzle for Aircraft Propulsion. (British) R.T.P., Tr. 2503.
- Robinson, S. T.: Report on Interrogation of M. Henri Coanda. (U.S.) Navy Bureau of Aeronautics.
- Shapiro, Ascher H.: Nozzles for Supersonic Flow without Shock Fronts. (U.S.) ASME Transactions, Journal of Applied Mechanics, June 1944. P. A-93 A-100.





Nozzles (Continued)

- Tsien, H. S.: Interrogation of Gottfried Guderley, on Studies of Supersonic Flow and Application to Missiles, Luftfahrtforschungsanstalt. (U.S.) AAF Technical Intelligence Report I-38.
- Zerkowitz, G.: On Supersonic Flow. (U.S.) Cornell Aeronautical Laboratory Translation.
- Frelsch: A New Method of Designing Two-Dimensional Laval Nozzles for a Parallel and Uniform Jet. (U.S.) North American Aviation Engr. Report No. NA-46-235.

McCloy, R. W.: The Actuating Nozzle for the Ejector Jet. (U.S.)
University of Illinois, Institute of Aeronautics Report No. 9-5.



Pipes

- King, Louis V.: Theory and Experiments Relating to the Establishment of Turbulent Flow in Pipes and Channel. (British) From: The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, Vol. 31, April 1916.
- Fromim, K.: Resistance to Flow in Rough Tubes. Report from the Aerodynamical Inst. of the Technical High School, Aachen, 1924, No. 3, 2nd and 3rd papers. Reprint from Zeitschrift fur angewande Mathematik und Mechanik, Vol. 3, No. 5, October 1923.
- Joukovsky, N. E.: Flow of Water in an Open Channel and Flow of Gases In Pipes.
- Joukovsky, N. E.: An Analogy between the Motion of Heavy Liquid in a Narrow Channel and the High Velocity Motion of Gas in a Pipe.
- Tchentzoff, N. G.: The Flow of Gases in Pipes with Wall Friction. (Russian) Central Aero-Hydrodynamical Institute, Russia Translation No. 1. (U.S.S.R. Scientific-Technical Department of the Supreme Council of National Economy, No. 63). 1925.
- Schmidt, W.: Flow in Cylindrical Pipes. V.D.I., October 1926.
- Atherton, D. H.: Fluid Flow in Pipes of Annular Cross-Section. (U. S.)
 Mechanical Engineering, November 1926, P. 1112-1114.
- Cox, Anthony B.: A New Theory of Fluid Flow. (U.S.) Journal of the Franklin Institute, December 1924, P. 769-793, and Journal of the Franklin Institute, December 1926, P. 811-815 (Discussion).
- Moroschkin, A. J.: Abstract: The Friction (Vortex) Layer and the Quadratic Friction Law. From Zeitschrift fur Angewandte Mathematik und Mechanik, Vol. 8, April 1928 P. 143-146.
- Wedemeyer, E. A.: Supersonic Velocity in Cylindrical Tubes. Zamm Band 8 Heft 5, October 1928 (P. 419-420).
- Fritsch, Walter: Effect of Wall Roughness on the Speed Distribution in the Turbulent Flow of Liquids through Troughs (or Tubes). (German) Report from the Aerodynamical Institute of the Technical High School, Aachen, No. 8, 1928. (See also: Zeitschrift fur angewandte Mathematik und Mechanik, June 1928, P. 199-216).
- Keevil, C. S., and McAdams, W. H.: How Heat Transmission Affects Fluid Friction in Pipes. (U.S.) From Chemical and Metallurgical Engineering, Vol. 36, No. 8, August 1929, P. 464-467.
- Bateman, H.: Variable Flow in Pipes. (U.S.) California Institute of Technology Publication No. 7 (Reprint from Physical Review, Vol. 35, No. 2, January 1930, P. 177-183.)

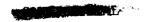
- Prandtl, L.: Heat Transmission in Tubes. (German) Trans. from Reprint from Physikalische Zeitschrift, Vol. 29, 1928, P. 487-489. May 1931.
- Colburn, Allan P. (Part I), Chilton, Thomas H. and Colburn, Allan P. (Part II), and Colburn, Allan P. and King, W. Julian (Part III): Heat Transfer and Pressure Drop in Empty, Baffled, and Packed Tubes. I Heat Transfer in Packed Tubes. II Pressure Drop in Packed Tubes. III Relationship between Heat Transfer and Pressure Drop. Industrial and Engineering Chemistry, Vol. 23, No. 8, August 1931, P. 919-923.
- Drew, T.B., Hogan, J.J., and McAdams, W. H.: Heat Transfer in Stream-Line Flow. From Industrial and Engineering Chemistry, Vol. 23, No. 8, August 1931, P. 936-945.
- Fage, A., and Townsend, H. C. H.: An Examination of Turbulent Flow with an Ultra-Microscope. (British) Aero. Research Committee T.3161 (F.M. 48), September 1931. See also: Proceedings of the Royal Society of London, Math. and Physics, Vol. 135, Sec. A., 1932, P. 656-677.
- Nikuradse, J.: Regularity of Turbulent Flow through Smooth Circular Pipes. (German) Forschung auf dem Gebiete des Ingenieur, Edition B, Vol. 3, Forschungsheft/356, September-October 1932.
- Kraussold, Hermann: Heat Transfer in Viscous Liquids in Pipes. (German) Forschunganfdem Gebiete des Ingenieurwesens, Edition B, Vol. 2, Forschungheft/351, December 1931.
- Nikuradse, J.: Flow Resistance in Rough Tubes. (German) From: Zeitschrift für angewandte Mathematik und Mechanik, Vol. 11, No. 6, December 1931, P. 409-411.
- Fage, A., and Townsend, H. C. H.: The Distribution of Turbulence over the Central Region of a Pipe. (British) R. and M. 1474, T.3161a, March 1932.
- Beale, E. S. L., and Docksey, P.: Flow in Pipes in the Critical Region. Journal of the Institution of Petroleum Technologists, Vol. 18, No. 105, July 1932.
- Nukiyamo, Daiyo: On the Flow of Water through Tubes. (Japanese) Aero-Research Institute, Toyko Imperial University, January 1933.
- Nikuradse, J.: Laws of Flow in Rough-Surface Pipings. (German)
 Forschung auf dem Gebiete des Ingenieurwesens, Edition B, Vol. 4,
 Forschungsheft 361, July-August 1933.





- Euler, Hans: Shock Losses and Resistance-Loss Coefficients in Pipe Lines and Conduits. (British) R.A.E. Lib. Trans. No. 1, R.T.P. 1903, May 1934.
- Ambrosius, Edgar E., Reed, John C., and Irving, Henry F.: Study of the Flow of Water through a Glass Pipe. Preprinted papers and program of the A.S.M.E., June 1934, P. 83-89.
- Bailey, A., and Cope, W. F.: Heat Transmission through Circular, Square, and Rectangular Pipes. (British) R. & M. 1560 (T. 3346, Revised), 1934.
- Fage, A.: Fluid Flow in Rough Pipes. (British) R. & M. 1585 (T. 3447), 1934.
- Van der Pyl, Lyman M.: The Flow of Fluids in Pipes. Instruments, January 1935, P. 1-4.
- Yamamoto, Tsunayuki: Study of Turbulent Flow in Smooth Pipes. (Japanese)
 Transactions of the Society of Mechanical Engineers, Vol. 1, No. 2,
 May 1935.
- Castagna, A: Experimental Research on the Transformation of Energy of a Gas Flowing in a Pipe. (British) Reprint from Reale Accademia delle Scienze di Torino, Atti, Vol. 70, 1934-35, P. 284-317. (See also: Air Ministry A.M.T., May 9, 1936).
- Fage, A: Turbulent Flow in a Circular Pipe. (British) R. & M. 1754 (1808)(Abstract). Complete in Philosophical Magazine, January 1936, P. 80-105.
- Tumura, Tosimitu: On the Laminar Flow of Viscous Fluid through a Straight Pipe. (Japanese) Transactions of the Society of Mechanical Engineers, Vol. 2, No. 6, February 1936.
- Yamamoto, Tsunayuki: Study of Turbulent Flow in Smooth Pipes. (Japanese) Transactions of the Society of Mechanical Engineers, Japan, Vol. 2, No. 7, May 1936.
- Fage, A.: On the Static Pressure in Fully-Developed Turbulent Flow. (British) R. & M. 1745 (2165)(Abstract) Complete in Proceedings of the Royal Society, July 1936, P. 576-596.
- Goldstein, S.: A Note on Roughness: (British) R. & M. 1763 (2539), July 1936.





- Allen, J.: The Kinetic Energy of Laminar Flow through Rectangular Passages. Philosophical Magazine, August 1936, P. 249-256.
- Muller, Wilhelm: The Flow of Fluid into a Straight Pipe with Annular or Circular Section. (German) Z.A.M.M., August 1936, P. 227-238.
- Estel, E.: Measurements of Pulsating Flow in Pipes. (German) Physikalische Zeit, August 1936, P. 565.
- Jung, Ingvar: Transmission of Heat and Frictional Resistance by Gas Flow in Pipes at High Velocities. (German) Forschung auf dem Gebiete des Ingenieurwesens, Edition B, Vol. 7, Forschungsheft 380, September-October 1936.
- Gurjienko, G.: Viscosity Effect on the Turbulent Flow in a Rectilinear Cylindrical Pipe with Smooth Walls. (Russian) Central Aero-Hydrodynamical Institute, Russia. Translation No. 303, 1936.
- Allen, J., and Grunberg, N. D.: The Resistance to the Flow of Water along Smooth Rectangular Passages, and the Effect of a Slight Convergence or Divergence of the Boundaries. Philosophical Magazine, March 1937, P. 490-503.
- Goldstein, S.: The Similarity Theory of Turbulence and Flow between Parallel Planes and through Pipes. (British) Proceedings of the Royal Society, April 1937, P. 473-496.
- Taylor, G. I.: Flow in Pipes and between Parallel Planes. (British) Proceedings of the Royal Society, April 1937, P. 496-506.
- Yamamoto, Tsunayuki: Study of Turbulent Flow in Rough Pipes. (Japanese)
 Transactions of the Society of Mechanical Engineers, Japan, Vol. 3,
 No. 11, May 1937.
- Hofmann, Ernst: Heat Transfer Equation for Fluid Flow in Tubes. (German) From Zeitschrift fur die gesamte Kalte-Industrie, Vol. 44, No. 6, June 1937.
- Colebrook, C. F., and White, C. M.: Experiments with Fluid Friction in Roughened Pipes. Proceedings of the Royal Society, August 1937, P. 367-381.
- Hahnemann, H.: New Experimental Research on the Formation of Turbulent Flow in a Tube. Forschung September-October 1937, P. 226-237.



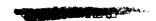
- Cope, W. F.: Friction and Heat Transmission Coefficients. (British) From Institute of Mechanical Engineers, London, Proceedings, Vol. 137, No. 11, 1937, P. 165-194.
- Lelchuk, V.: The Flow Resistance of Compressible Gas in a Smooth Round Pipe of Constant Section. (Russian) Technical Physics of the U.S.S.R., Vol. 4, No. 8, 1937.
- Howorth, L.: Concerning Secondary Flow in Straight Pipes. From the Proceedings of the Cambridge Philosophical Society, Vol. 34, Pt. 3, July 1938.
- Christopherson, D. G., Gemant, A., Hogg, A.H.A., and Southwell, R. V.: Oscillatory Motion of a Fluid along a Circular Tube. (British) Proceedings of Royal Society, November 1938, P. 351-378.
- Lee, Allyn, Nelson, W. O., Cherry, V. H., and Boelter, L. M. K.: Pressure Drop and Velocity Distribution for Incompressible Viscous Non-Isothermal Flow in the Steady State through a Pipe. Reprint From International Congress for Applied Mechanics, Proceedings, 1938, P. 571-577.
- Millikan, Clark B.: A Critical Discussion of Turbulent Flow in Channels and Circular Tubes. (U. S.) California Institute of Technology Publication No. 114. Reprint from International Congress for Applied Mechanics, Proceedings, 1938, P.386-392.
- Cope, W. F.: The Friction and Heat Transmission Coefficients of Rough Pipes. (British) A.R.C. 3903 (F.M. 406), February 1939.
- Wallis, R. P.: The Optimum Size of Models for Studying Flow through Nests of Tubes. From Engineering, April 1939, P. 487-489.
- Tomotika, Susumu and Imai, Isao: On the Velocity Distributions in Turbulent Flow through a Straight Pipe of Annular Cross Section. (Japanese) Aero. Research Institute, Tokyo Imperial University, July 1939.
- Boynton, E. R., Culp, H. P., Lebenbaum, P., Poritsky, H., and Streid, D. D.: Laws and Data of Fluid Flow. (U. S.) Gen. Elec. Co. T.R. 18545-I, 1939.
- Tomotika, Susumu, Tamada, Ko, and Saito, Yukimasa: Application of the Similarity Theory of Turbulence to the Flow through a Straight Pipe of Annular Cross-Section. (Japanese) Aero. Research Institute, Tokyo Imperial University Report No. 188, Vol. 15, No. 2, March 1940.



- Bates, Herbert T.: Velocity Distribution of Fluid in Turbulent Flow. From American Institute of Chemical Engineers, Trans. V. 36, No. 2, April 1940, P. 269-284.
- Hausen, H.: Pressure Drop and Heat Transfer in the Case of Turbulent Non-Isothermal Flow. (British) Ministry of Aircraft Production R.T.P. 1410, April 1940.
- Tomotika, Susumu, and Umemoto, Hazimu: Note on the Application of the Momentum Transport Theory to the Turbulent Flow through a Straight Pipe of Annular Cross-Section. (Japanese) Aero. Research Institute, Tokyo Imperial Univ. Report No. 189, Vol. 15, No. 3, May 1940.
- Tomotika, Susumu, and Tamada, Ko: Application of the Vorticity Transport Theory of the Turbulent Flow through a Straight Pipe of Annular Cross-Section. (Japanese) Aero. Research Institute, Tokyo Imperial University, May 1940.
- Schultz-Grunow, F.: Pulsating Flow through Pipes. (German) From Forschung auf dem Gebiete des Ingenieurwesens, Vol. 11, No. 4, July-August 1940, P. 170-187.
- Ribaud, Gustave: Turbulent Friction and Convection in a Cylindrical Channel. (French) Comptes Rendus, November 1940, P. 460-463.
- Ribaud, Gustave: The Curve of the Velocity in Wall Proximity in Turbulent Flow Deduced from Convection Measurements. (French) Comptes Rendus, December 1940, P. 541-543.
- Pretsch, J.: On the Stability of Laminar Flow in a Straight Pipe of Circular Cross Section. (British) Ministry of Aircraft Production R.T.P. 1517, August 1941.
- Hawthorne, W. R.: Simplified Analysis of Frictional and Compressible Flow in Pipes. (British) R.A.E. E.3929, March 1942.
- Montgomery, R. B.: Generalization for Cylinders of Prandtl's Linear Assumption for Mixing Length. (U.S.) New York Academy of Sciences Report, March 1942, P. 31-44.
- Langhaar, Henry L.: Steady Flow in the Transition Length of a Straight Tube. (U.S.) Journal of Applied Mechanics, June 1942, P. A-55 A-58.
- Norris, R. H., and Sims, M. W.: A Simplified Heat Transfer Correlation for Semi-Turbulent Flow of Liquids in Pipes. (U.S.) American Institute of Chemical Engineers, Vol. 38, No. 3, June 1942, P. 469-492.



- Young, A. D., and Winterbottom, N. E.: High-Speed Flow in Smooth Cylindrical Pipes of Circular Section. (British) A.R.C. R. & M. 2068 (6401), November 1942.
- Kuo, Y. H.: The Flow of a Compressible Viscous Fluid through a Straight Pipe. (U.S.) From Journal of Mathematics and Physics, Vol. 22, No. 1, May 1943, P. 13-30.
- Martinelli, R. C., Taylor, T. H. M., Thomsen, E. G., Morrin, E. H., and Boelter, L. M. K.: Pressure Drop for Two-Phase, Two-Component Flow in a Horizontal Pipe. (U. S.) University of California, May 1943. (See also: A.S.M.E., Trans. Feb. 1944, P. 139-151).
- Mache, H.: The Transition from Laminar to Turbulent Flow in Smooth Cylindrical Pipes. From Z. VDI, June 1943, P. 355-358.
- Hawthorne, W. R., and Cohen, H.: Pressure Losses and Velocity Changes Due to Heat Release and Mixing in Frictionless, Compressible Flow. (British) R.A.E. E.3997, January 1944.
- Mache, H.: Transition between Laminar and Turbulent Flow of Gases in a Smooth Cylindrical Pipes. (German) From VDI, January 1944.
- Schmidt, Ernst: Progress in Thermodynamic Research. (German) From Z. VDI, February 1944, Vol. 88, No. 5-6, P. 75-78.
- Preston, J. H., and Sweeting, N. E.: The Velocity Distribution in the Boundary Layer of a Plane Wall at High Reynolds Numbers with Suggestions for Further Experiments. (British) A.R.C. Fluid Motion Panel 7488 (F.M. 671), February 1944.
- Binder, R. C.: Limiting Isothermal Flow in Pipes. (U. S.) A.S.M.E. Transactions, April 1944, P. 221-223.
- Emerson, W. S., and Young, A. D.: High-Speed Flow in Slowly Convergent and Divergent Pipes and Channels. Part I Meridian Profiles for Pipes and Channels with Constant Axial Mach Number. (British) RAE Report No. Aero. 1957, July 1944.
- Batchelor, G. K.: On the Hydrodynamic Resistance. Council for Scientific and Industrial Research, Australia, Division of Aeronautics Report A.27, October 1944.
- Hughes, N. J. S.: Two-Dimensional Constant Velocity Ducts. (British) A.R.C. Tech. Report 8424, Aero 1996, December 1944.



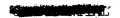
- Chang, S. L.: The Turbulent Flow through a Circular Pipe. (Chinese) From Chinese Journal of Physics, Vol. 5, No. 2, December 1944.
- Meksyn, D.: Fluid Motion between Parallel Planes Dynamical Stability. (British) A.R.C. Fluid Motion Panel 8288 (F.M. 765), December 1944.
- Aronovitch, G. V.: Motion of a Viscous Incompressible Fluid in a Circular Tube Vibrating Longitudinally. (Russian) From Prekladnaia Matematika I. Mekhanika N.S. 8, 1944, P. 79-83.
- Chukhanov, Z. F.: Hydrodynamical Theory of Heat Exchange and Diffusion in Turbulent Gas Flow in Pipes. (Russian) From Comptes Rendus de l'Academie des Sciences de L'URSS, Vol. XIIII, No. 7, 1944.
- Szczeniowski, B.: Flow of Gas through a Tube of Constant Cross Section with Heat Exchange through the Tube Walls. (Canada) From Canadian Journal of Research, Vol. 23, Sec. A., January 1945.
- Squire, H. B.: Reconsideration of the Theory of Free Turbulence. (British) R.A.E. Aero 2023, March 1945.
- Holder, D. W.: Transition Indication in the National Physical Laboratory 20 in. x 8 in. High Speed Tunnel. (British) A.R.C. 8866, July 1945.
- Fiul, Abraham: A Linearized Subsonic Theory of Two-Dimensional Ducts with a Pressure Loss. (U.S.) University of Southern California USCAL Report 3-2, January 1946.
- Nonweiler, T.: A Linearized Solution of the Motion of a Compressible Fluid through Tubes with Axial Symmetry. (British) R.A.E. Report No. GAS 10, July 1946.
- Koppe, M.: The Influence of Friction on Steady Flow in Pipes at High Velocities. (British) Ministry of Aircraft Production R. & T. 164, August 1946.
- Rendel, D., and Rudman, J.: Flow of High Pressure Air in Small Pipes. (British) R.A.E. TN No. SME 377, September 1946.
- Binnie, A. M., and Fowler, J. S.: A Study by a Double-Refraction Method of the Development of Turbulence in a Long Circular Tube. (British) Aeronautical Research Council, November 1946.
- Mack, C. E., Jr., Ludloff, H. F., and Reiche, F.: Rigorous Solution of Linearized Supersonic Flow through Ducts. (U. S.) Journal of Applied Physics, Vol. 18, No. 7, July 1947, P. 682-683.



- Ludloff, H. F., and Reiche, F.: Linearized Supersonic Flow through Ducts. (U. S.) Journal of Applied Physics, Vol. 18, No. 7, July 1947, P. 681-682.
- Ruggiero, Ralph H., Diels, Melvin, and Sugar, Alvin C.: Summary Report, Phase 2, Contract No. NOa(s) 8520 Theoretical Studies Associated with Pulse Jet Development. (U.S.) Marquardt Aircraft Company Report No. P.P.-7, September 1947.
- Staiger, Kurt, and Kamm, W. I. E.: Development of Intermittent Jets for Aircraft. (U. S.) AFAMC Report No. F-TR-2111-ND (revised) GS-AAF-Wright Field No. 31, November 1947.
- Busemann, A.: Gas Dynamics. Part II Flow in Pipes. (British) Ministry of Aircraft Production R.T.P. 2208.
- Busemann, A.: Supersonic Velocity in Cylindrical Pipes. (German) ZAMM.

Bends

- Eustice, J.: Flow of Fluids in Curved Passages. (U.S.) From Engineering, November 1925, P. 604-605.
- Hovgaard, William: The Elastic Deformation of Pipe Bends. (U.S.)
 Massachusetts Inst. of Technology Pub. Serial No. 434, Vol. 62,
 No. 64, November 1926.
- Wirt, Loring: New Data for the Design of Elbows in Duct Systems. (U.S.) From General Electric Review, Vol. 30, No. 6, June 1927. (See also extracts Pratt & Whitney Installation Bulletin 4, February 1940, P. 3-4.)
- Witoszynski, C.: Deflection of a Stream by 180°. Air Corps, Material Division Memo. Report No. 228 (A.D.M. 910), September 1927.
- White, C. M.: Streamline Flow through Curved Pipes. (British) From Royal Society of London, Proceedings, Vol. 123A, April 1929, P. 645-663.
- Lorenz, H.: The Resistance of Pipe Bends. (German) Translation from Physikalische Zeitschrift, Vol. 30, No. 8, April 1929, P. 228-230.
- Nippert, H.: On the Flow Losses in Curved Channels. (German) From Zeitschrift des Vereines Deutscher Ingenieure, Vol. 73, No. 39, September 1929, P. 1391-1392.
- Ackeret, J.: Energy Losses in Constant-Pressure Guide Vanes. (German) Aurel Stodola. Reprint from Papers written in commemoration of Professor A. Stodola's 70th Birthday. 1929.



Bends (Continued)

- Maccoll, J. W.: The Two-Dimensional Flow in a Curved Channel. (British) Journal of the Royal Aeronautical Society, August 1930, P. 649-689.
- Klein, G. J.: Tupper, K. F., and Green, J. J.: The Design of Corners in Fluid Channels. (Canadian) From Canadian Journal of Research, Vol. 3, 1930.
- Miyagi, Otogoro: Flow in a Curved Pipe and Its Stability. (Japanese) Journal of the Society of Mechanical Engineers, Japan, Vol. 35, No. 187, November 1932.
- Kegawa, Masami: The Flow of Water in a Pipe Bend Theory and Application. (Japanese) Journal of the Society of Mechanical Engineers, Japan, Vol. 36, No. 192, April 1933.
- Frey, Kurt: Reduction of Flow Losses in Channels by Guide Vanes. From Forschung. (U. S.) Air Corps Translation 345, December 1940.
- Wattendorf, Frank: Some Experimental Investigations of Flow in Curved Channels. (U.S.) California Inst. of Technology Publication 43, 1934. (See also: Preprinted papers and program of the A.S.M.E., June 1934, P. 13-19.)
- Adler, M.: Flow in Pipe Bends. (German) From Zeitschrift fur Angewandte Mathematik und Mechanik, Vol. 14, No. 5, October 1934, P. 257-275.
- Wattendorf, Frank L. (Communicated by H. Bateman): A Study of the Effect of Curvature on Fully Developed Turbulent Flow. (British) California Inst. of Technology Publication 54. Reprint from Proceedings of Royal Society of London, Sec. A., Vol. 148, No. 865, February 1935, P. 565-598.
- Abramovich, G.: Fluid Motion in Curved Channels. (Russian) CAHI, Russia, Translation No. 211, 1935, P. 97-151.
- Patterson, G. N.: Note on the Design of Corners in Duct Systems. (British) R. & M. 1773 (2628), October 1936.
- Eicke, S., and van Truenfels, W.: Measurement of Twist of Flow behind Bends. (British) Ministry of Aircraft Production R.T.P. 1552 PT-110 January-February 1937.
- Patterson, G. N.: Corner Losses in Ducts. Factors Affecting the Design of Efficient Corners and Leading to Reduction of Resistance. (U. S.) Aircraft Engineering, August 1937, P. 205-208.
- Hovgaard, William: Further Studies of Three-Dimensional Pipe Bends. (U. S.) A.S.M.E. Trans., Vol. 59, No. 8, November 1937, P. 647-650.

THE PARTY OF THE P

Bends (Continued)

- Keulegon and Beij: Pressure Losses for Fluid Flow in 90° Pipe Bends. (U. S.) Reprint from Nat. Bureau of Standards Journal of Research, Vol. 21, July 1938, Research Paper 1110.
- Wieselsberger, C.: Velocity and Pressure Measurements in Curved Guide Passages. (German) Review of Engineering Research, P. 55-56. Z. VDI, January 1941, P. 50-56.
- Vigness, Irwin: Elastic Properties of Curved Tubes. (U. S.) A.S.M.E. Trans. February 1943, P. 105-117.
- Young, A. D., Green, G. L. and Owen, P. R.: Tests of High Speed Flow in Right Angled Pipe Bends of Rectangular Cross Section. (British) R.A.E. Aero 1863, October 1943.
- Nazsonyi, Andrew: Pressure Loss in Elbows and Duct Branches. (U. S.)
 Harvard University Graduate School of Engineering. See also: A.S.M.E.
 Trans. April 1944.
- Pringle, G. E.: Potential Flow in Monotonic Contractions. (British) R.A.E. Tech. Note Aero. 1630, April 1945.
- Weske, John R.: Experimental Investigation of the Velocity Distribution Downstream of Single Duct Bends. (U.S.) Case School of Applied Science, May 1944 and May 1945.
- Lighthill, M. J.: Notes on the Deflection of Jets by Insertion of Curved Surfaces, and on the Design of Bends in Wind Tunnels. (British) A.R.C. R. & M. 2105, September 1945.
- Monaghan, R. J.: A Method of Designing Corner Channels and Cascades on a Hyperbolic Base-Line. (British) R.A.E. Report No. Aero. 2104, January 1946.
- Frossel, W.: Experimental Investigation of the Compressible Flow at and in the Vicinity of a Curved Wall. (British) MOS(S) Volkenrode Repts. and Trans. No. 344, April 1947.
- Friedrichs, K. O.: Formation and Decay of Shock Waves. (U. S.) New York University Inst. for Math. and Mech., IMM-NYU 158, May 1947.
- Carrier, G. F.: Elbows for Accelerated Flow. (U. S.) Journal of Applied Mechanics, Vol. 14, No. 2, June 1947, P. A-108 A-112.
- Galperin, V. G.: Investigation of a Flow of Compressible Gas in a Curved Channel. (Russian) Central Aero-Hydrodynamical Inst., Russia, Trans. No. 302.



Bends (Continued)

Harper, John J.: Tests on Elbows of Special Design. (U.S.) Georgia School of Tech. State Eng. Exp. Station, Reprint No. 20.

EXITS

- Townsend, H. C. H.: The Flow Induced by a Jet of Air. (British) A.R.C. R. & M. 1634 (F.M. 163), 1935.
- Brown, W. S.: Theoretical Discharge of Air from Ports in a Duct. (British) A.R.C. R. & M. 1868 (Abstract), July 1939. (Complete in The Engineer, Vol. 166, No. 4324, November 1938, and No. 4325, December 1938).
- Wright Aeronautical Corporation: A Study of Exhaust Thrust from Steady Flow Nozzles Evaluating Optimum Back Pressure and Net Gains Available. (U. S.) Wright Aero. Corp. Report, 1940.
- Thompson, J. S.: Note on Factors Affecting the Thrust of a Jet Propulsion Unit. (British) R.A.E. Report No. B.A. 1703, August 1941.
- Thompson, J. S, and Barnes, E. G.: Model Tests on Nozzles for Jet Propulsion. (British) R.A.E. Report No. B.A. 1700, August 1941.
- Hickman, C. N.: Notes and Tests of the Design and Performance of Jet-Propelled Devices. (U. S.) OSRD Report 28, NDRC Memo. No. A-4M to A-17M, September 1941.
- Moyes, S. J., and Bishop, A. E.: The Equilibrium Running Condition of Simple Jet-Propulsion Units. (British) R.A.E. Report No. E.3954, September 1942.
- Nelson, D. W., and Smedberg, G. E.: The Performance of Side Outlets on Horizontal Ducts. (U. S.) From Heating, Piping, and Air Conditioning, November 1942, P. 686-693.
- Reeman, J., Topps, J. E. C., and Bigg, F. J.: Bench Tests on Exhaust Ducts for Use with Triple Ejector Fishtail Exhaust Manifolds. (British) R.A.E. Tech. Note Eng. 119, March 1943.
- Slatter, B. H., and Bailey, W.: Note on Simple Thrust Augmentation for Jet Propulsion Units. (British) R.A.E. Tech Note Eng. 121, March 1943.
- Reeman, J.: Note on Design of Exhaust Ducts. (British) R.A.E. Tech. Note Eng. 137, April 1943.



EXITS (Continued)

- Minchin, L. T, and Zaczek, B. Y.: Mixing of Gas Streams by "Sandwich Scoop." (British) R.A.E. Tech. Note No. Eng. 130, April 1943.
- Squire, H. B., and Trouncer, J.: Round Jets in a General Stream. (British) A.R.C. R. & M. No. 1974 (7591), January 1944.
- Kunze, N.: Flow Photographs of a Jet Leaving a Flat Surface Obliquely. (German) AVA (Gottingen) Untersuchungen and Mitteilungen No. 3140, August 1944.
- Pabst: The Spreading of Hot Gas Jets in an Air Stream. (German) Untersuchungen and Mitteilungen No. 8004, August 1944 (Part I), No. 8007, September 1944 (Part II).
- Eggert, H.: Pressure Distribution Measurements on the Rear Portions of a Jet Nacelle for the Determination of the Longitudinal Moment. (German) AVA (Gottingen) Untersuchungen and Mitteilungen No. 3179, November 1944.
- Riegels, F., and Eggert, H.: Measurements on the Rear Portions of Jet Nacelles. (German) AVA (Gottingen) Untersuchungen und Mitteilungen No. 3201, December 1944.
- Squire, H. B., Harper, D. J., Bekassy, J. and Chester, W.: Wind-Tunnel Tests of Oblique Jet Units. (British) R.A.E. Report No. Aero. 2007, January 1945.
- Squire, H. B.: Reconsideration of the Theory of Free Turbulence. (British) R.A.E. Report No. Aero. 2023, March 1945.
- Williams, Glenn C., and Quinn, John C., Lt., U.S.N.R.: Ram Jet Power Plants. (U. S.) OSRD Jet Propelled Missiles Panel, Office of Field Service, May 1945.
- Lukasiewicz, J.: Note on Exhaust Actuated Air Ejector Design. (British) R.A.E. Tech. Note No. Eng. 352, June 1945.
- Lighthill, M. J.: Notes on the Deflection of Jets by Insertion of Curved Surfaces, and on the Design of Bends in Wind Tunnels. (British) A.R.C. R. & M. 2105, September 1945.
- Seddon, J., and Harrison, J. E. A.: A Collection and Correlation of Wind Tunnel Test Data on the Exit Static Pressures at Engine Cooling Ducts. (British) R.A.E. Report No. Aero. 2127, March 1946.





EXITS (Continued)

- Mallinson, D. H. and Johnstone, A. P.: The Effect of Jet Pipe Length on Gas Turbine Engine Performance. (British) NGTE Power Jets, Ltd., Power Jets Rept. No. R. 1128, July 1946.
- Pinkel, Benjamin: NACA Study of the Utilization of Exhaust Gas of Aircraft Engines. Reprint from S.A.E. Journal, Vol. 54, 1946, P. 714-735.
- Johnstone, A. P.: The "Spill-Off" Variable Propelling Nozzle. (British) Ministry of Supply NGTE Report No. R. 7, December 1946.
- Braun and Retert: Damping Effect of a Conducted Jet. (British) Ministry of Supply, Volkenrode Translation, Report No. L.F. 114, V. 494.

JET PUMPS AND THRUST AUGMENTORS

- Meyer, Erich: The Theory of Steam-Jet Air Pump (German) Technische Hochschule, Berlin, 1920.
- Hives, E. W., and Smith, F. L.: High Output Aircraft Engines. (U.S.) S.A.E. Journal (Transactions), March 1940 and Aircraft Engineering, July 1940.
- Lee, John G.: Progress Report on Augmented Jet Propulsion. (U.S.)
 United Aircraft Corporation Report No. R-48, October 1940.
- Campbell, P. J.: Ground Tests of Exhaust Gas Thrust Augmentors. (U. S.)
 United Aircraft Corporation Report No. R-50, November 1940.
- Rauscher, Manfred, and Phillips, W. H.: Propulsive Effects of Radiator And Exhaust Ducting. (U. S.) Journal of the Aeronautical Sciences, February 1941, P. 167-174.
- Hellmer, R. E.: Steam-Jet Vacuum Pumps. (U. S.) International Sugar Journal, July 1941.
- Howell, A. R.: Note on the Theory of Simple Thrust Augmenters for Jet Propulsion. (British) R.A.E. E. 3886, August 1941.
- Orden, A., and Campbell, Kenneth: A Study of Performance at High Altitude Using Several Supercharging and Jet Propulsion Systems. (U.S.) Wright Aeronautical Corporation 577, 1941.
- Orden, A.: Design of Individual Exhaust Stacks and Their Effects on Engine Performance. (U.S.) Wright Aeronautical Corporation 648, January 1942.



JET PUMPS AND THRUST AUGMENTORS (Continued)

- Haver, Ralph L.: Design Aspects of Aircraft Exhaust System. (U. S.) S.A.E. Meeting May 1942.
- Giles, Cedric: Engine Exhaust Propulsion Recovery of Previously Lost Energy. (U.S.) Astronautics, October 1942, P. 11-12.
- Slatter, B. H., and Bailey, W.: Note on Simple Thrust Augmentation for Jet Propulsion Units. (British) R.A.E. Tech. Note Eng. 121, March 1943.
- Reeman, J., Topps, J. E. C., and Bigg, F. J.: Bench Tests on Exhaust Ducts for Use with Triple Ejector Fishtail Exhaust Manifolds. (British) R.A.E. Tech. Note Eng. 119, March 1943.
- Kennedy, William G.: Exhaust Ejector Tests on a Single Cylinder R-2800 Engine. (U.S.) United Aircraft Corporation Research Division Report R-309-B, July 1943.
- Grandfield, J. P.: The Effect of Exhaust Jets and Ejectors on Cooling. (U. S.) United Aircraft Corporation Research Division Report R-143-L, September 1943.
- Hood, J. Hall: Compressed Air Tests of Circular Multiple Nozzle Ejectors without Diffusers. (U.S.) United Aircraft Corporation Research Division, Report R-450, February 1944.
- McClintock, Frank A.: Theoretical Calculation of Steady-Flow Ejector Performance. (U.S.) United Aircraft Corporation Research Division Report 447, May 1944.
- Hood, J. Hall: Compressed Air Tests of Single and Multiple Nozzle Ejectors with Diffusers. (U.S.) United Aircraft Corporation Research Division, Report 450A, June 1944.
- Knowler, A. E., and Holder, D. W.: Measurements on a Model Experimental Supersonic Tunnel (M = 1.45) of the Injector Type. (British) A.R.C. Report No. 8138, T.P. 66, October 1944.
- Knowler, A. E., and Holder, D. W.: Effect of Variation on the Diffuser on the Performance of a High-Speed Tunnel of the Injector Type. A.R.C. Tech. Pub. No. 80, Ae. 2708, February 1945.
- Lukasiewicz, J.: Note on Exhaust Actuated Air Ejector Design. (British) R.A.E. Tech. Note Eng. 352, June 1945.
- Elrod, H. G., Jr.: The Theory of Ejectors. (U. S.) Journal of Applied Mechanics, September 1945, P. A-170 A-174.



JET PUMPS AND THRUST AUGMENTORS (Continued)

- Knowler, A. E., and Holder, D. W.: Variation of the Performance of a Tunnel of the Injector Type With Design of Injector Slot. A.R.C. Tech. Pub. No. 139, March 1946.
- Wenner, Karl: Increase of Cooling Air Flow by Use of Exhaust Gas Energy. (British) Ministry of Aircraft Production Reports and Trans. 285, September 1946.
- McCloy, R. W.: The Actuating Nozzle for the Ejector Jet. (U. S.) University of Illinois, Institute of Aeronautics Report No. 9-5.

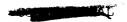
COMPRESSORS

- Kalinushkin, M. P.: The Effect of Solid Particles Mixed with the Air in the Performance of Centrifugal Blowers. (Russian) Central Aero-Hydrodynamical Institute, Transactions No. 168, 1933.
- Keller, C.: New Axial Blowers for Air and Gases. (German) Escher-Wyss News, Vol. 7, No. 2, 1934.
- Keller, C.: Airfoil Theory and the Design of Axial Blowers. (German) Eidgenossische Technische Hochschule Zurich, Institut für Aerodynamik Report 2, 1934.
- Neumann, Kurt: Junkers Free Piston Compressor. (From Zeitschrift des Vereines Deutscher Ingenieure, Vol. 79, No. 6). (U. S.) Navy Department Bureau of Ships Research Memo. No. 4-44, February 1935.
- Polikovsky, V., and Nevelsen, M.: Statistical Method of Investigation of Centrifugal Fans. (Russian) Central Aero-Hydrodynamical Institute Transactions No. 227, 1935.
- Sedille, Marcel: Axial Compressors. Effect of Clearance. (French) Comptes Rendus, June 1939, P. 1789-1790.
- Moyes, S. J. E.: Note on Performance Characteristics of Axial Flow Compressors. (British) R.A.E. E.3752, December 1939.
- Sorg, K. W.: Supersonic Flow in Turbines and Compressors. (British) Ministry of Aircraft Production R.T.P. Tr. 1327. (From Forschung auf dem Gebiete des Ingenieurwesens, Vol. 10, No. 6, November-December 1939, P. 270-285).
- Constant, Hayne: Note on i. c. Turbine Research. (British) R.A.E. Tech. Note E. 3819, August 1940.





- Kluge, F.: Pressure Conversion and Efficiency of Single-Stage and Multistage Centrifugal Blowers at High Peripheral Speeds. (German) Forschung auf dem Gebiete des Ingenieurwesens, Vol. 11, No. 5, September-October 1940, P. 228-237.
- Medici, Mario: Principles of Design and Selection of Fans and Compressors. (British) Engineers' Digest, October 1941, P. 366-374. (Abstracted from L'Energia Termica, Vol. 8, No. 3, March 1940).
- Moyes, S. J. E.: Note on Vortex Flow Theory as Applied to Axial Flow Turbine Blade Design. (British) R.A.E. Note No. E. 3898, November 1941.
- Moyes, S. J. E.: The Use of an Inward Radial Flow Turbine for Jet Propulsion Units. (British) R.A.E. Eng. Dept. I.C.T. Memo. No. 33, April 1942.
- Cohen, H.: Compressibility Effect on the Flow of an Ideal Fluid in a Radial Passage. (British) R.A.E. E. 3940, May 1942.
- Knorschild, E.: The Polytropic Efficiency of a Compressor. (British) Ministry of Aircraft Production R.T.P. Tr. 1700. (From Luftfahrtforschung, Vol. 19, No. 6, June 1942, P. 183-188).
- Baxter, A. D., and Smith, C. W. R.: Tests of R.A.E. Contra-Flow Turbo-Compressor. (British) R.A.E. Report No. E. 3945, June 1942.
- Bishop, A. E.: General Performance Characteristics of the Simple Jet Propulsion Cycle. (British) R.A.E. Tech. Note Eng. 5, June 1942.
- Moyes, S. J. and Bishop, A. E.: The Equilibrium Running Condition of Simple Jet Propulsion Units. (British) R.A.E. Note No. E. 3954, September 1942.
- Westinghouse Electric and Manufacturing Company: Supersonic Compressor Test Report. (U.S.) (Excerpts from Westinghouse monthly progress reports of Jan.-Oct. 1942, covering supersonic compressor tests).
- Dallenbach, F.: Tests in the Single-Stage Full Scale Model Axial Compressor with Small Tip Clearances and No Labyrinth Sealing. (U. S.) Northrop Aircraft, Inc. Report No. R-43, November 1942.
- Moyes, S. J.: An Analysis of the Equilibrium Running Condition of Jet Propulsion Units. (British) R.A.E. Report No. E. 3960, November 1942.
- Cohen, H.: Vortex Wind Tunnel Tests on Two Types of Blading. (British) R.A.E. Tech. Note Eng. 71, December 1942.



- Howell, A. R.: The Present Basis of Axial Flow Compressor Design. Part II. Compressor Theory and Performance. (British) R.A.E. E. 3961, December 1942.
- Mettam, Marjorie: Characteristics of 3, 5, 7, and 9 Stage Compressor Designed to Give Fixed Pressure Ratios. (British) R.A.E. Tech. Note Eng. 72, December 1942.
- Mettam, Marjorie: Investigation of the Effect of Blow-Off on the Low Speed Characteristics of an Axial Compressor. (British) R.A.E. Tech. Note Eng. 110, February 1943.
- Cohen, H, and White, Elizabeth M.: The Theoretical Determination of the Three-Dimensional Flow in an Axial Compressor with Special Reference to Constant Reaction Blading. (British) R.A.E. E. 3989, April 1943.
- Aleck, B.: Design of Compressor and Turbine Wheel. (U.S.) Curtiss-Wright Corporation Airplane Division Report MA-39-A-1, June 1943.
- Moness, E.: Compressor Blade Vibration. Turbodyne α1500. (U.S.) Northrop Aircraft, Inc. Report No. R-45, August 1943.
- Wald, Quentin: The Theory of High Pressure Axial Flow Fans. (U. S.) United Aircraft Corporation Research Division Report R-367, August 1943.
- Wattendorf, Frank L.: Loss Computations from Lattice Fan Systems. (U. S.) AAF Serial ENG-51/9037-1-2, August 1943.
- Foley, J. R.: Test Performance of Ten Lattice-Type Fans. (U. S.) (United Aircraft Corporation Research Division Report No. R-301, November 1943.
- Weske, John R.: Investigation of Blade Characteristics. Performance and Efficiency of Turbine and Axial-Flow Compressor Stages. (U.S.). For presentation at the annual meeting, N. Y., A.S.M.E., November-December 1943.
- Null, W. V. D.: Centrifugal Compressors. (British) Ministry of Aircraft Production, R.T.P. Tr. 1152, 1943.
- Wattendorf, Frank L.: Power Characteristics of Lattice Type Axial Flow Fans or Compressors. (U. S.) AAF Serial Eng-51-9037-1-4, April 1944.
- Johnson, Elmer G.: Lattice Flow Fan Design Charts. (U.S.) AAF Serial ENG-51-9037-1-6, August 1944.

COLUMN TO SERVICE STATE OF THE PARTY OF THE

- Thompson, W. S.: Presentation of Compressor Thermodynamic Performance. (U. S.) General Electric Company, Engineering Division Bulletin, DF-81338, December 1944.
- Weske, John R.: Equilibrium in Radial and Axial Direction. (U.S.) Case School of Applied Science, Aerodynamics Laboratory, 1944.
- Banks, F. R.: The Importance of Power Unit Development. (British) Lecture before Royal Aeronautical Society, February 1945.
- Shannon, J. F.: Vibration Problems in Gas Turbines, Centrifugal and Axial Flow Compressors. (British) R.A.E. Report No. Vib. 4, March 1945.
- Campbell, Kenneth, and Talbert, John E.: Some Advantages and Limitations of Centrifugal and Axial Aircraft Compressors. (U.S.) S.A.E., May 1945.
- Meyer, R. E.: Report on Recent Swiss Researches on Potential Flow through the Blade-Wheels of Axial-Flow Turbo-Machines. (British) A.R.C. Fluid Motion Subcommittee. A.R.C. 8912 (F.M. 830a), August 1945.
- Campbell, K.: Information on the Aerodynamic Design of Axial Flow Compressors in Germany. (U. S.) Naval Technical Mission in Europe Tech. Report 546-45, October 1945.
- Bayerische Motoren Werke: Vol. II Axial Flow Compressor Research. (German) (A.G., Munich), 1945.
- Sawyer, J. G.: Design and Application of High Pressure Coefficient Axial-Flow Fans. (U.S.) I.A.S. National meeting paper, 1945.
- Blight, F. G.: Effect of Diameter Taper on Axial Flow Compressor Weights. (British) Power Jets, Ltd., Research and Development, Whetstone Memo. 1182, February 1946.
- California Institute of Technology: Jet Propulsion. A Reference Text Prepared by the Staffs of the Guggenheim Aeronautical Laboratory and the Jet Propulsion Laboratory. (U.S.) GALCTT, 1946.
- Pigott, R. J. S.: Design Technique Forecasts Supercharger Performance. (U. S.) (Excerpts from paper presented at the 1947 S.A.E. National Meeting, January 1947). S.A.E. Journal, January 1947, P. 59-64.
- Engineering: High-Pressure Two-Stage Air-Cooled Air Compressor. (British) Engineering, May 1947, P. 407-408.



- Davidson, I. M.: On Data Pertaining to the Supersonic Axial-Flow Compressor. (British) NGTE Report No. R.15, May 1947.
- Sinnette, John T., Jr.: Increasing Range of Axial-Flow Compressor by Use of Adjustable Stator Blades. (U.S.) Journal of the Aeronautical Sciences, Vol. 14, No. 3, May 1947.
- Schwenterly, S. W.: Low Speed Tests of Compressor Models. (U. S.) Westinghouse Electric and Manufacturing Company Report A-4, Contract NOa(s) 503.
- Keller, Allen: Methods of Presenting Supercharger Compressor Performance. (U.S.) General Electric Company, Supercharger Engineering Division.

CASCADES

- Constant, H.: Note on Performance of Cascades of Aerofoils. (British) R.A.E. E. 3696, June 1939.
- Bailey, W.: High-Speed Cascade Tunnel No. 2 Boundary Air Layer Suction. (British) R.A.E. Eng. Dept. ICT Memo. No. 23, March 1942.
- Howell, A. R.: The Present Basis of Axial Flow Compressor Design.
 Part I. Cascade Theory and Performance. (British) R.A.E. E. 3946,
 June 1942.
- Howell, A. R.: The Present Basis of Axial Flow Compressor Design. Part II Compressor Theory and Performance. (British) R.A.E. E. 3961, December 1942.
- Relf, E. F.: Effect on Guide Vanes. Research on Tunnel Design. (British) A.R.C. Tunnel Panel 7339 (T.P. 17), January 1944.
- Lighthill, M. J.: A Mathematical Method of Cascade Design. (British) A.R.C. R. & M. 2104, June 1945.
- Meyer, Richard E.: A Contribution to the Theory of Axial Blade Grids (British) A.R.C. Report No. 8869, F.M. 530, July 1945.
- Carter, A. D. S., and Cohen, Elizabeth M.: Preliminary Investigation into the Three Dimensional Flow through a Cascade of Aerofoils. (British) Power Jets, Ltd. (Research and Development) R. 1180, February 1946.





Cascades (Continued)

- Carter, A. D. S., and Hughes, Hazel P.: A Theoretical Investigation into the Effect of Profile Shape on the Performance of Aerofoils in Cascade. (British) Power Jets, Ltd. (Research and Development) R. 1192, March 1946.
- Andrews, S. J., Andrews, Patricia M., and Baines, Margaret: A Comparison between Two Compressor Cascades Using C4 Profile on Parabolic and Circular Arc Camber Lines. (British) Ministry of Supply NGTE Memorandum No. M. 6, September 1946.
- Reeman, J.: Performance of Cascades of Aerofoils at Positive Stagger. (British) Ministry of Supply NGTE, Power Jets Memo. No. M. 1203, March 1947.

TURBINES

- Sorg, K. W.: Supersonic Flow in Turbines and Compressors. (British) Ministry of Aircraft Production R.T.P. Tr. 1327. From Forschung auf dem Gebiete des Ingenieurwesens, Vol. 10, No. 6, November-December 1939, P. 270-285.
- Moyes, S. J.: Note on Vortex Flow Theory as Applied to Axial Flow Turbine Blade Design. (British) R.A.E. Note E. 3898, November 1941.
- Moyes, S. J.: The Use of an Inivard Radial Flow Turbine for Jet Propulsion Units. (British) R.A.E. Engineering Dept. ICT Memo. 33, April 1942.
- Weske, J. R.: Investigation of Blade Characteristics. Performance and Efficiency of Turbine and Axial-Flow Compressor Stages. (U. S.) For presentation at the Annual Meeting, A.S.M.E., November-December 1943.
- D'Amico, C. D. and Erichsen, W. J.: Heat Indication Tests on Turbine Rotor and Turbine-Compressor Rotor Assembly. (U. S.) Joshua Henry Iron Works Report No. 22, September 1944.
- Huebotter, Harry A., and Vogt, Paul R.: Study of Compressor and Gas Turbine Components for Aircraft Power Plants. (U.S.) Office of Military Government for Germany, Office of Naval Advisor, Naval Technical Unit, Europe. Tech. Report 558-45, December 1945.
- Bammert, K., and Hahnemann, H.: The Heat Transfer from Cooled Gas Turbine Blades. Part II. (British) Translation. Reports and Trans. No. 619, September 1946.



TURBINES (Continued)

- Cox, H. Roxbee: British Aircraft Gas Turbines. (U.S.) Journal of the Aero. Sciences, February 1946, P. 53-83.
- Weinig, F.: Flow Patterns of a Compressible Gas through Turbine Cascades when Shock Waves are Avoided. (U.S.) AAF F-TR-2141-ND-GS-AAF-Wright Field No. 15, May 1947.

INSTRUMENTS

- Zobel, T.: Progress in the Field of Optical Flow Measurements. (German) Forschungsbericht 1934, or Schriften der Deutschen Akademie für Luftfahrtforschung, Mitteilung No. 5008/44g. F.B. 1934.
- Hottenroth, G.: Some Experience with the Mach-Zehnder Interferometer. (German) F.B. 1924 (1943).
- AAF Air Technical Service Command: Report on the Development of Minute Pressure Gauges for Use in Supersonic Wind Tunnels. (U.S.) Progress Report No. IRE-33, V-4486-45, Foreign Exploitation Section, Intelligence, AAF ATSC, January 1946.
- Zoebel: Flow Measurement by Light Interference. (Canadian) Tech.
 Translation No. TT-20. (Stroemungsmessung durch Lichtinterferenz).
 June 1947.
- Zoebel: Development and Construction of an Interferometer for Measuring Density Fields by Optical Means. (Canadian) Tech. Trans. No. TT-18, June 1947.

RESEARCH TECHNIQUES

- Sokoloff, S. J.: Practical Applications of the Diffraction of Light on Supersonic Waves. (British) R.T.P. Trans. 2453. (Physikalische Zeftschrift Vol. 36, 1935, P. 142-144.
- Preston, J. H., and Sweeting, N. E.: Wood Smoke as a Means of Visualizing Boundary Layer Flow at High Reynolds Numbers. (British) Journal of Royal Aero. Society, March 1943, P. 93-102. (A.R.C. 5537) (F.M. 507) December 1941.
- Erdmann: Fundamentals of Pressure Distribution Measurements at Supersonic Velocities by Means of Holes. (U.S.) Translation by Office of Naval Intelligence, Tech. Intelligence Center, Navy Department. (From Wasserbau-Versuchsanstalt Kochelsee G.m.b.H., Archiv. Nr. 66/47, February 1942).

SECOND PROPERTY.

RESEARCH TECHNIQUES (Continued)

- Preston, J. H., and Sweeting, N. E.: An Improved Smoke Generator for Use in the Visualisation of Airflow, Particularly Boundary Layer Flow at High Reynolds Numbers. (British) A.R.C. 7111, R. & M. 2023, October 1943.
- Hill, R. G., and Raven, F. A.: Schlieren and High Speed Photography. A Bibliography. (U. S.) David Taylor Model Basin, Bureau of Ships, Navy Dept. Report No. R-260, June 1944.
- Gray, W. E.: A Chemical Method of Indicating Transition in the Boundary Layer. (British) R.A.E. Tech. Note No. Aero 1466, July 1944.
- Preston, J. H., and Sweeting, N. E.: Experiments on the Measurements of Transition Position by Chemical Methods. (British) R. & M. 2014 (A.R.C. 8536). March 1945.
- Pringle, G. E., and Main-Smith, J. D.: Boundary-Layer Transition Indicated by Sublimation. (British) R.A.E. Tech. Note No. Aero 1652, June 1945.
- Arnold: Density Measurements to Determine the Structure of Compression Shocks on Wedges. (U.S.) Cornell Aero. Laboratory Translation. Kochel Report 66/192, July 1945.
- Richards, E. J., and Burstall, F. H.: The "China-Clay" Method of Indicating Transition. (British) A.R.C. 8867 (F.M. 829), August 1945.
- Pringle, G. E., and Main-Smith, J. D.: Visualisation of the Boundary Layer Transition in Water. (British) R.A.E. Tech. Note No. Aero 1688, September 1945.
- Weyl, F. Joachim: Analytical Methods in Optical Examination of Supersonic Flow. (U.S.) NavOrd Report 211-45, December 1945.
- Air Technical Service Command: Determination of the Local Density in an Axio-Symmetrical Problem Based upon the Average Density Obtained by the Optical Interference Method. (U.S.) Progress Report No. IRE-35, V-6126-55, Foreign Exploitation Section, Intelligence, AAF ATSC. January 1946.
- Air Technical Service Command: Density Measurements with X-Rays in the Supersonic Flows of the Wind Tunnel. (U.S.) Progress Report No. IRE-30, V-5670-36, Foreign Exploitation Section, Intelligence, AAF ATSC, January 1946.



RESEARCH TECHNIQUES (Continued)

- Gray, W. E.: A Simple Visual Method of Recording Boundary Layer Transition (Liquid Film). (British) R.A.E. Tech. Note No. Aero 1816, August 1946.
- Groth, E.: Measurement of Flow around the Aerofoil by Means of a Mach-Zehnder Interferometer. (U. S.) Joint Intelligence Objectives Agency, B.I.G.S.-94, AGD 1011, August 1946.
- Schardin, H.: Toepler's Striation Method. Principles for Its Application and Quantitative Evaluation. (British) R.T.P. Trans. 249.
- Giles, D.: National Physical Laboratory Mach Number Gauge. (British) A.R.C. TR No. 8797 (R. & M. 2131).

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